SONY

3-786-709-22 (1)

Stereo Video Cassette Recorder

EV-S900

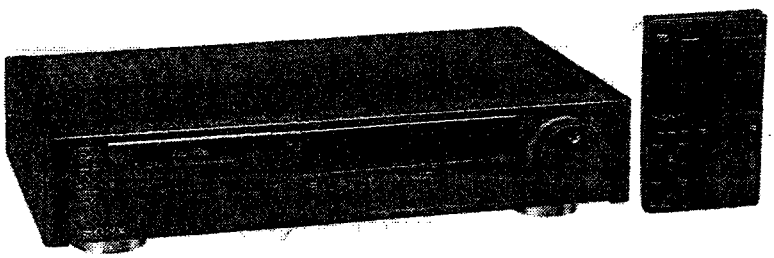
Operating Instructions

Before operating the unit, please read this manual thoroughly and retain it for future reference.

Owner's Record

The model number is located at the rear and the serial number on the top. Record the serial number in the space provided below. Refer to these numbers whenever you call upon your Sony dealer regarding this product.

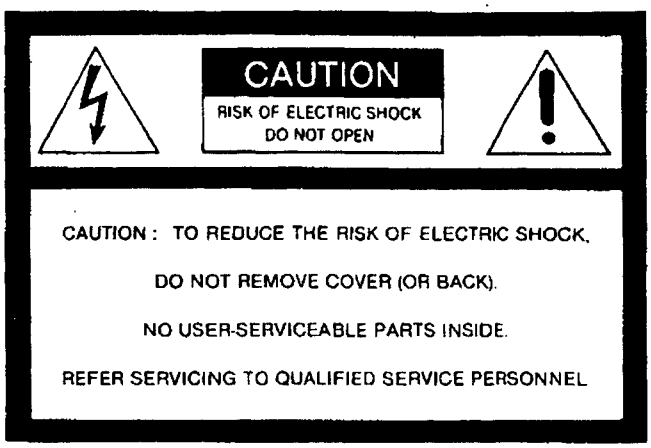
Model No. EV-S900 Serial No. _____

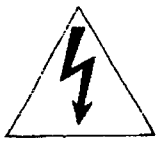


video Hi8

Warning

To prevent fire or shock hazard, do not expose the unit to rain or moisture.


CAUTION
RISK OF ELECTRIC SHOCK
DO NOT OPEN
CAUTION : TO REDUCE THE RISK OF ELECTRIC SHOCK,
DO NOT REMOVE COVER (OR BACK).
NO USER-SERVICEABLE PARTS INSIDE.
REFER SERVICING TO QUALIFIED SERVICE PERSONNEL



This symbol is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

This symbol is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

CAUTION:
TO PREVENT ELECTRIC SHOCK, DO NOT USE THIS POLARIZED AC PLUG WITH AN EXTENSION CORD, RECEPTACLE OR OTHER OUTLET UNLESS THE BLADES CAN BE FULLY INSERTED TO PREVENT BLADE EXPOSURE.

INFORMATION
This equipment generates and uses radio frequency energy and if not installed and used properly, that is, in strict accordance with the manufacturer's instructions, may cause interference to radio and television reception. It has been type tested and found to comply with the limits for a Class B computing device in accordance with the specifications in Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference in a residential installation. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

Reorient the receiving antenna
Relocate the equipment with respect to the receiver
Move the equipment away from the receiver
Plug the equipment into a different outlet so that equipment and receiver are on different branch circuits.

If necessary, the user should consult the dealer or an experienced radio/television technician for additional suggestions. The user may find the following booklet prepared by the Federal Communications Commission helpful:
"How to Identify and Resolve Radio-TV Interference Problems". This booklet is available from the U.S. Government Printing Office, Washington, DC 20402, Stock No. 004-000-00345-4.

NOTICE FOR THE CUSTOMERS IN CANADA
This apparatus complies with the Class B limits for radio noise emissions set out in Radio Interference Regulations.

Caution
Television programs, films, video tapes and other materials may be copyrighted.
Unauthorized recording of such material may be contrary to the provisions of the copyright laws.
Also, use of this recorder with cable television transmission may require authorization from the cable television transmitter and/or program owner.

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How the Manual Is Organized

- This manual is arranged to help you find easily the information you need for the operation of this unit. Information about usual operations is contained in the first half of the manual. Read the "Preparations" on pages 47 to 55 first to make the correct connections to the antenna and TV and make the necessary preparations before you begin.
- The operating procedures in this manual are mainly stated in terms of using the supplied Remote Commander. You can use the buttons on the VCR with the same name and mark as those on the Commander.
- Please refer to the illustration corresponding to the letter code in the instructions.

Precautions

On safety

- Operate the unit only on 120 V AC.
- Should any solid object or liquid fall into the cabinet, unplug the unit and have it checked by qualified personnel before operating it any further.
- One blade of the plug is wider than the other for the purpose of safety and will fit into the power outlet only one way. If you are unable to insert the plug fully into the outlet, contact your dealer.
- Unplug the unit from the wall outlet if it is not to be used for an extended period of time. To disconnect the cord, pull it out by the plug. Never pull the cord itself.

On installation

- Allow adequate air circulation to prevent internal heat build-up. Do not cover the holes on the top panel.
- Do not place the unit on surfaces (rugs, blankets, etc.) or near materials (curtains, draperies) that may block the ventilation slots.
- Do not install the unit near heat sources such as radiators or air ducts or in a place subjecct to direct sunlight, excessive dust, mechanical vibration or shock.
- The unit is designed for operation in a horizontal position. Do not install it in an inclined position.
- Keep the unit and cassette tapes away from equipment with strong magnets, as for example a microwave oven or a large loudspeaker.
- Do not place any heavy object on the unit. Never place any object on the tuning compartment nor on the top of the front panel.

On operation

- When the unit is not in use, turn the power off to conserve energy and to extend its useful life.
- Remove and store video cassettes after recording or playback.

On cleaning

Clean the cabinet, panel and controls with a dry soft cloth, or a soft cloth lightly moistened with a mild detergent solution.
Do not use any type of solvent, such as alcohol or benzine which might damage the finish.

On repacking

Do not throw away the carton and packing materials. They make an ideal container in which to transport the unit. When shipping the unit to another location, repack it as illustrated on the carton.

On cassette care

Store cassettes in their cases and keep them in an upright position to prevent intrusion of dust and uneven winding.

If you have any questions about this unit, contact your Sony dealer.

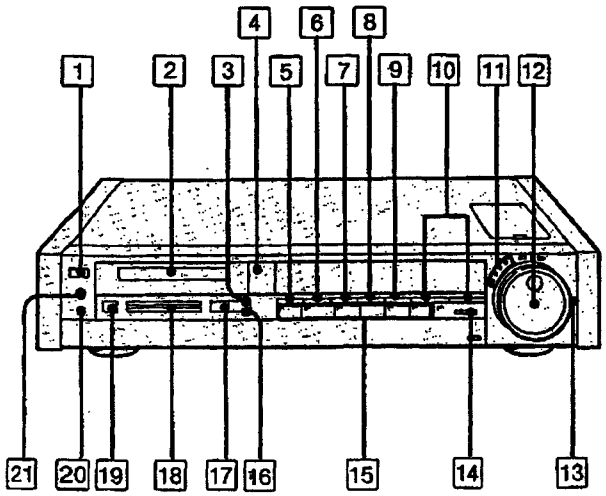
This unit uses 8mm video format cassettes.

It records in the SP mode (approximately 1.43cm (19/32 in.)/second) and the LP mode (approximately 0.72cm (5/16 in.)/second) and can play back in the SP mode and the LP mode.

This unit is equipped with PCM (digital audio) recording/playback functions.

Location and Function of Parts and Controls

A-1



Refer to the pages indicated in ● for details.

Front Panel A-1

1 POWER switch and indicator

2 Cassette holder

3 SYNCHRO EDIT indicator

4 OPEN/CLOSE button ⓫

5 COUNTER/REMAIN button ⓱

6 COUNTER RESET button ⓰

7 TAPE RETURN button ⓯

8 INDEX button ⓳

9 TV/VTR button

This button functions only when the VHF/UHF IN connector at the rear is connected. To view the program selected on the recorder, press this button so that the VTR indicator appears in the display window (VTR mode). To view the TV program while recording another, press this button so that the VTR indicator disappears (TV mode).

10 CHANNEL/TRACK/INDEX buttons

11 JOG dial mode indicators

Light when the JOG dial is being used for the associated operations.
JOG/SHUTTLE: For selecting the playback speeds in various playback modes.
CHANNEL: For selecting the channels or to designate the tracks.
TIMER: For setting the clock or timer-activated recordings.
INDEX: For designating the index numbers.

12 JOG dial

13 SHUTTLE ring

14 ● REC (recording) switch and indicator

15 Tape transport buttons and indicators

◀◀ REW (rewind), ▶ PLAY (playback), ▶▶ FF (fast-forward), ■ STOP, ❚❚/▶❙ PAUSE/STILL, x2 (double speed playback)

16 LINE 2 indicator

17 HI 8 (Hi-Eight playback/recording) indicator

18 Peak program meter ㉘

19 Remote control detector

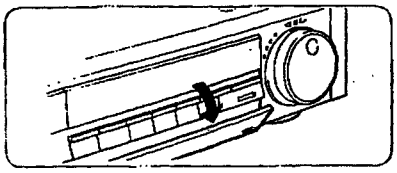
20 HEADPHONES jack (stereo minijack)

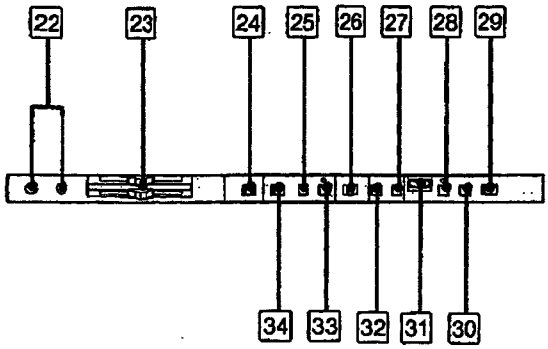
Connect stereo headphones.

21 PHONE LEVEL (headphone level) control

Adjust the volume of headphones connected.

A-2





Inside the front panel A-2

22 **MIC (microphone) jacks** (minijack) 46
Connect a microphone with a mini plug.

23 **REC (recording) LEVEL controls** 25

24 **Hi 8 (High Eight) mode switch** 18

25 **SYNCHRO EDIT button** 41 42

26 **PCM MODE selector** 27 29

27 **INDEX ERASE button** 35

28 **AUDIO DUB button and indicator** 45

29 **AUDIO MONITOR selector** 20

30 **STD (standard) AUDIO selector** 19

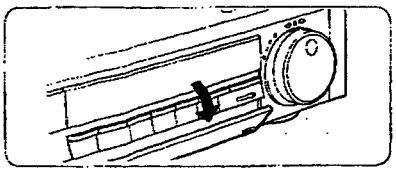
31 **SHARPNESS control** 12

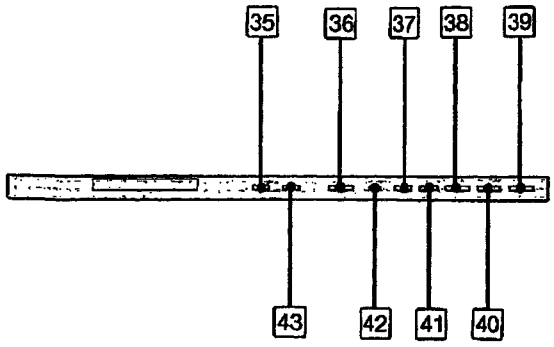
32 **INDEX MARK button** 32

33 **EDIT button and indicator** 37

34 **LINE selector** 29

A-3





Rear of the front panel A-3

35 **INPUT SELECT button** 19

36 **SLEEP button** 31

37 **CHECK button** 26

38 **TIMER SET button** 22

39 **TIMER REC ON/OFF button** 23

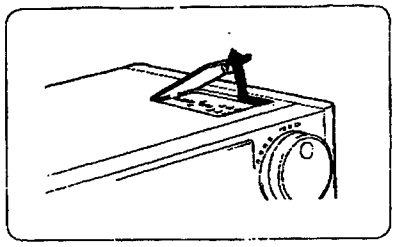
40 **NEXT button** 23

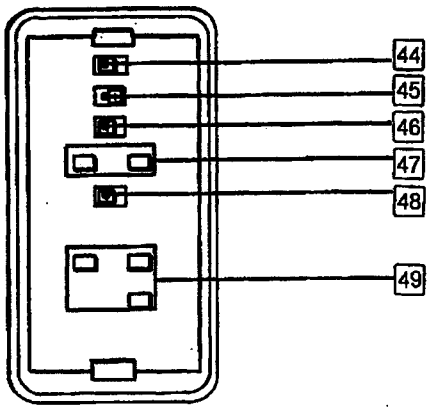
41 **CLEAR button** 26

42 **CLOCK SET button** 35

43 **REC MODE button** 11

A-4





Upper compartment A-4

44 AUTO INDEX switch ⑫

45 COMMAND MODE selector ⑨

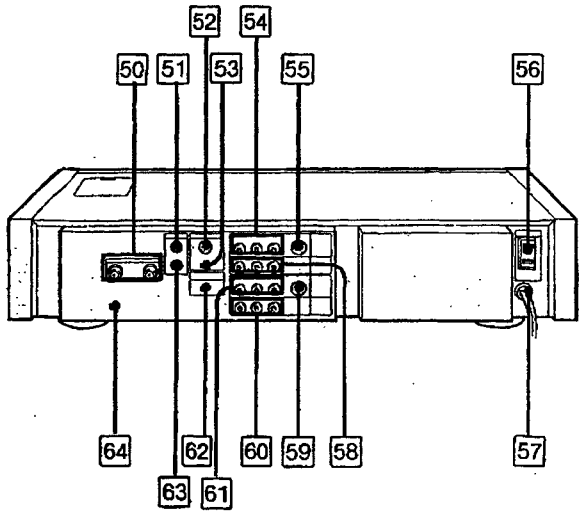
46 ANTENNA SW (switch) ⑩

47 SLOW/STILL ADJ (adjust) buttons ⑭

48 AUTO STEREO switch ⑬

49 Buttons used for channel presetting ⑮
ERASE button
ADD button
NORMAL/CATV button

A-5



Rear panel A-5

50 VHF/UHF IN/OUT terminals

51 CONTROL S IN jack (minijack) ㊴

52 CONTROL L connector (5-pin DIN) ㊵

53 SLAVE/MASTER selector ㊶

54 LINE IN 1 AUDIO/VIDEO jacks (phono jack)

55 LINE IN 1 S VIDEO connector (4-pin mini-DIN)

56 AC OUTLET (unswitched, 400 W max.)

57 AC power cord

58 LINE IN 2 AUDIO/VIDEO jacks (phono jack)

59 LINE OUT 1 S VIDEO connector (4-pin mini-DIN)

60 LINE OUT 2 AUDIO/VIDEO jacks (phono jack)

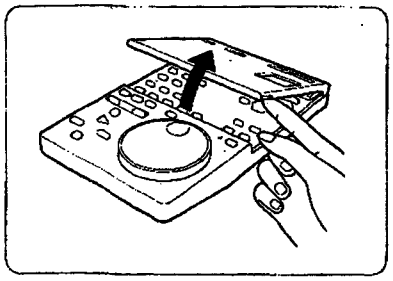
61 LINE OUT 1 AUDIO/VIDEO jacks (phono jack)

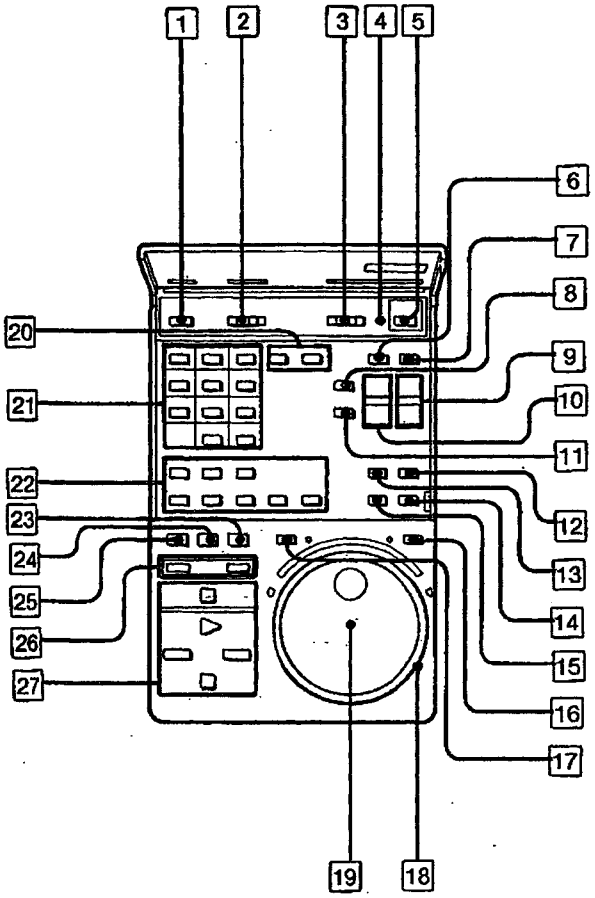
62 DIGITAL MULTI PLAY selector ㊳

63 CONTROL S OUT jack (minijack) ㊴

64 RF UNIT channel selector ㊷

A-6





Remote Commander RMT-424 A-6

The buttons without the * mark have the same function as the buttons on the VCR with the similar name or mark.
The buttons with an orange dot can be used to operate Sony TVs having a ■ mark.

1 **OPEN/CLOSE button**

2 **Command mode selector*** ⑨

3 **Remote control TV/VTR selector*** ⑨

4 **Transmitting indicator***
Lights when any button on the Commander is pressed.

5 **POWER switch**

6 **MUTING button***
Press to mute the sound. Press again to restore it.

7 **TV/VTR button**

8 **DISPLAY button***
Press to retain the on-screen display. Press again to extinguish it.

9 **TRACK/CH (channel) +/– button**

10 **VOL (volume) +/– buttons***

11 **SLEEP button**

12 **COUNTER RESET button**

13 **COUNTER/REMAIN button**

14 **SYNCHRO EDIT button**

15 **AUDIO DUB button**

16 **TRACK/CH/INDEX button and indicator***
Press when using the JOG dial for digital multi audio track, channel or index number selection.

17 **JOGSHUTTLE mode button and lamp***
Press when using the JOG dial and SHUTTLE ring for various speed playback.

18 **SHUTTLE ring**

19 **JOG dial**

20 **INDEX MARK/ERASE button**

21 **Number buttons*** ⑯ ⑱

22 **Various speed playback buttons***
▶◀ (still picture), ◀II/II▶ FRAME (frame-by-frame picture), x1/10/x1/5 (slow motion picture), x1 (normal speed picture), x2 (double speed picture), SCAN (for picture search)

23 **AUTO PB (automatic playback) button** ⑫
Press to play back a tape automatically from the beginning of the tape after rewinding.

24 **TAPE RETURN button**

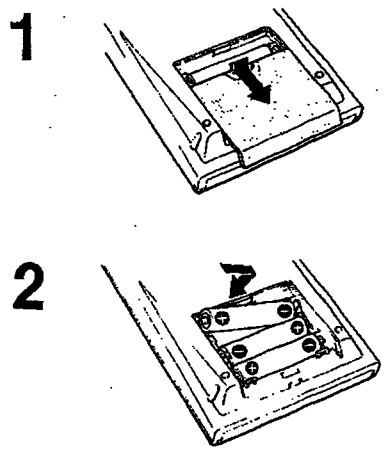
25 **INDEX button**

26 ● **REC (recording) buttons**
To start recording, press these buttons simultaneously.

27 **Tape transport buttons**

Remote Control Operation

B-1



Inserting batteries B-1

1 Open the lid.

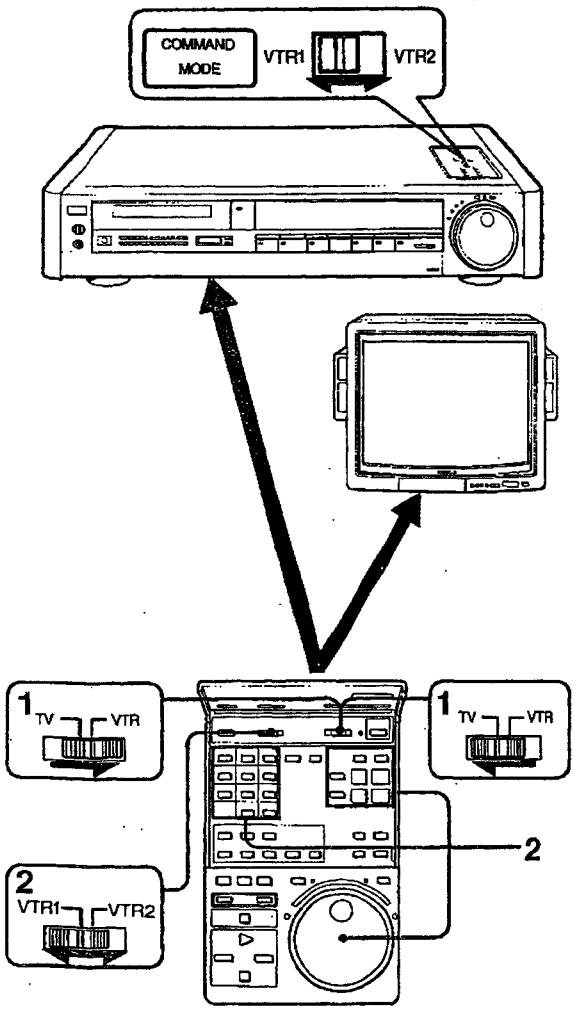
2 Insert two size AA (R6) batteries with correct polarity and close the lid.

Battery life

In normal operation, batteries will last for about three months. When the batteries are exhausted, the JOG dial and SHUTTLE ring on the Commander will not function, and then the indicator will not light when any button on the Commander is pressed.

If the Commander is not to be used for a long period of time
Remove the batteries to avoid possible damage from battery leakage.

B-2



Operation B-2

To operate a VCR

1 Set TV/VTR to VTR.

2 Set the command mode selector to the same position as that of the command mode selector of the VCR.

3 Press the required buttons or turn the JOG dial or SHUTTLE ring.

To operate a Sony remote control TV

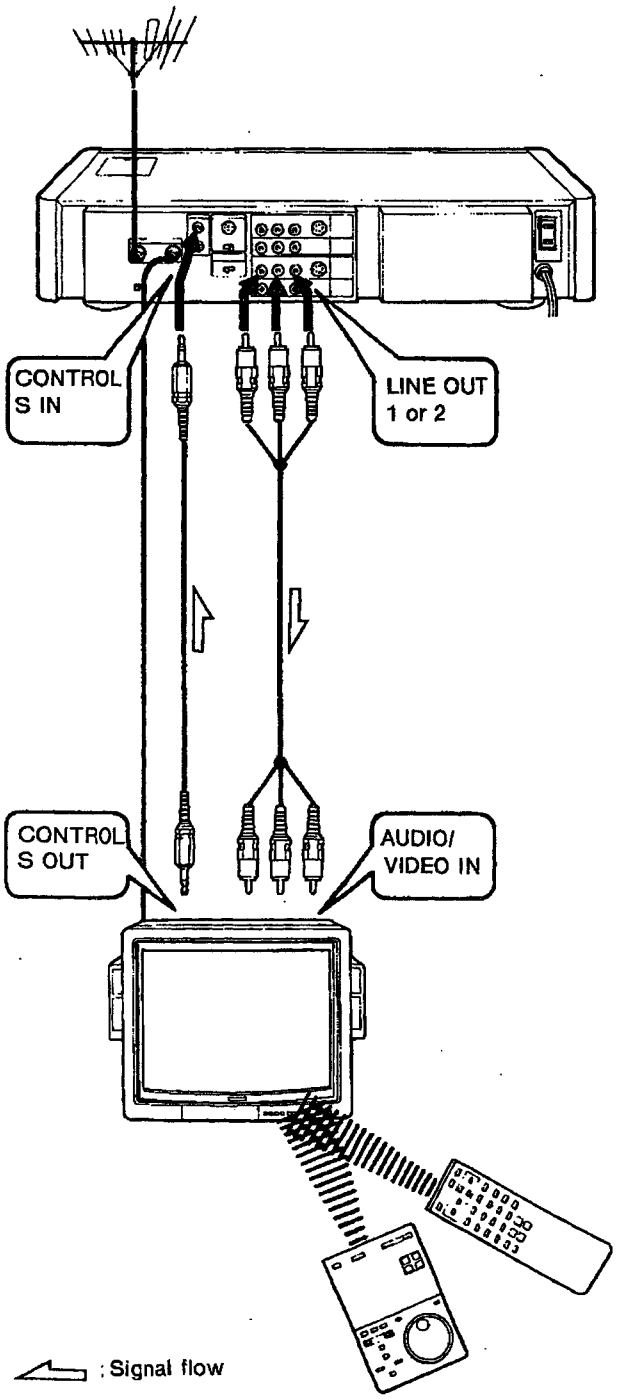
The Sony TVs with a ■ mark can be operated with this Commander.

1 Set TV/VTR to TV

2 Press the required buttons or turn the JOG dial or SHUTTLE ring. The buttons marked with an orange dot can be used.

To use the JOG dial and SHUTTLE ring on the Commander
- When using JOG for track number, channel or index number selection, press TRACK/CH/INDEX so that the associated indicator lights.
- When using JOG or SHUTTLE for various speed playback, press JOGSHUTTLE so that the associated indicator lights.
- After using JOG and SHUTTLE, press the same button again to turn off the indicator. The indicator will go out automatically in about 1 minute without pressing the button.

B-3



To remotely control two VCRs (this unit and another VCR)

If another VCR is equipped with a command mode selector

To avoid having this VCR and the other equipment functioning simultaneously, set COMMAND MODE on this VCR to the different command mode position from the command mode on the other VCR. Simply by switching the command mode selector on the Commander, you can control two VCRs separately.

If another VCR is not equipped with a command mode selector

Set the command mode selector on the Remote Commander as follows:
VTR1: for Sony Beta format VCRs
VTR2: for Sony 8 mm format VCRs

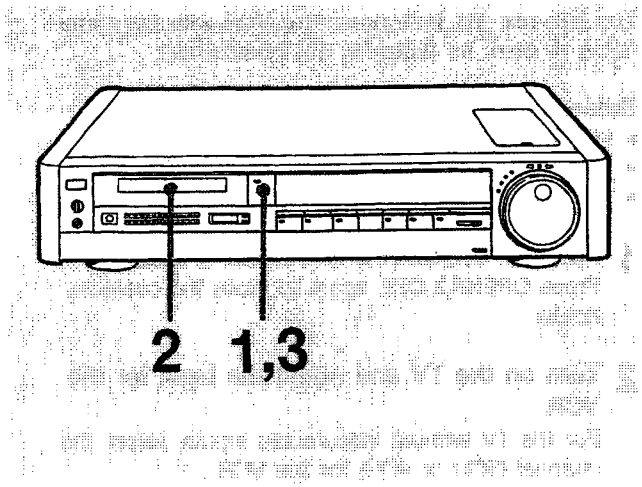
If another VCR is equipped with a CONTROL L jack
With control L connection you can remotely control the other VCR by pointing the Commander to this VCR.

To remotely control this unit through the other equipment B-3

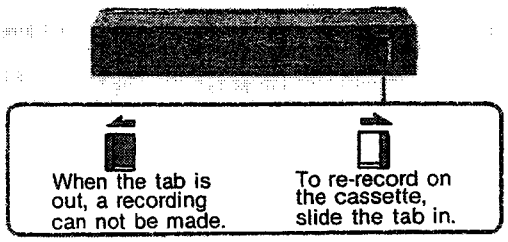
If your TV or TV tuner is equipped with a CONTROL S output, you can operate this unit by pointing the Commander equipped with this unit or the TV toward the TV or TV tuner. This is convenient when the two units are located apart from each other.

Handling the Cassette

C-1



C-2



Inserting a Cassette C-1

1 Press OPEN/CLOSE.
The power will be turned on automatically. (Auto power on)
The cassette holder will be ejected.

2 Insert the cassette with the window side up.

3 Press OPEN/CLOSE to close the cassette holder.

Ejecting a Cassette

1 Press OPEN/CLOSE.

2 Eject the cassette.
Press OPEN/CLOSE to close the holder.

To Prevent Accidental Erasure C-2

When a new recording is made on a previously recorded cassette, the previous recording will be automatically erased. To avoid erasing a recording unintentionally, slide out the tab on the cassette to cover the opening. (A red mark will appear.)

Recording/Playback Time

The recording time of a cassette in the LP mode is twice as long as that in the SP mode. The quality of the recording picture in the LP mode, however, will not be as good as that in the SP mode. You can select the recording speed with the REC MODE button. The playback speed is automatically set.

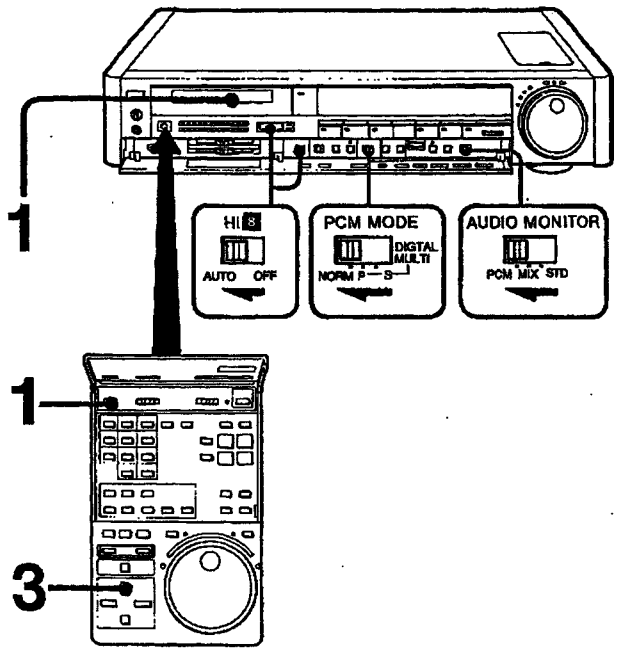
Cassette used	SP	LP
P6-15	15 min.	30 min.
E6/P6-20	20 min.	40 min.
P6-30	30 min.	1 hr.
P6-45	45 min.	1 hr. 30 min.
E6/P6-60	1 hr.	2 hr.
P6-90	1 hr. 30 min.	3 hr.
E6/P6-120	2 hr.	4 hr.

Notes on cassettes
- Never insert anything in the small holes at the rear of the cassette as the VCR distinguishes between ME and MP cassettes by the shape of a hole.
- Store cassettes in their cases and keep them in an upright position to prevent intrusion of dust and uneven winding.
- When the VCR is not in use, remove the cassette.

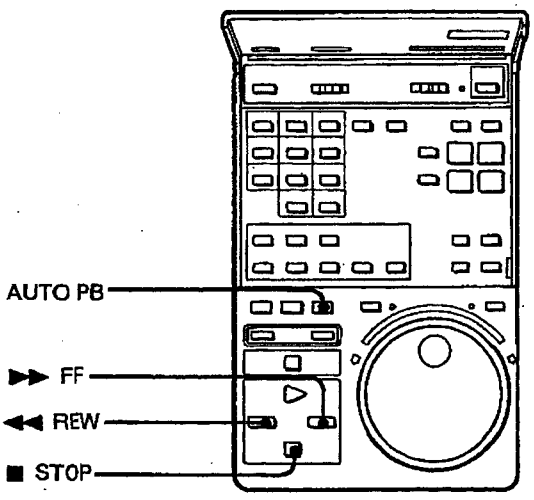
Use of ME cassettes will be recommended to obtain a high-quality picture in the LP mode with the Hi8 video system activated.

Playing back a Tape

D-1



D-2



Operation D-1

You can use the buttons on the VCR with the same name or mark as those on the Commander.

Before operating
- Hi 8 switch: AUTO
- PCM MODE selector: NORM
- AUDIO MONITOR selector: PCM

1 Press OPEN/CLOSE and insert a cassette.
Press OPEN/CLOSE again to close the cassette holder.

2 Turn on the TV and select the input for the VCR.
For the TV without video/audio inputs, select the channel (3CH or 4CH) for the VCR.

3 Press ▶ PLAY. Playback will begin.
The indicator on the ▶ PLAY button on the VCR will light during playback.

If playback does not start
Readjust the channel for the VCR on the TV. (See page 52.)

D-2

To stop playback	Press ■ STOP.
To advance the tape rapidly	Press ▶▶ FF.
To rewind the tape	Press ◀◀ REW.
To play back a tape from the beginning after rewinding — Auto play	On the Remote Commander: Press AUTO PB. On the VCR: Press ▶ PLAY keeping ◀◀ REW.

When the tape reaches the end during playback

It will be automatically rewound. The power will remain on.

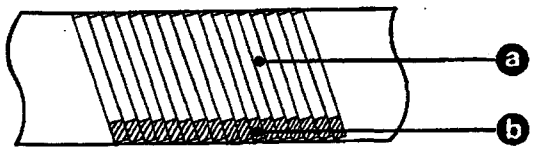
Picture adjustment

Turn the SHARPNESS control toward SHARP to get a sharp picture or toward SOFT for a soft picture.

If the playback picture does not appear
Check the DIGITAL MULTI PLAY selector at the rear. Set the selector to AUTO.

If the playback picture does not appear when the recorder is connected to a TV without video/audio inputs
Set ANTENNA SW inside the upper compartment of the VCR to AUTO. When the selector is set to MANUAL, press TV/VTR on the Commander or the recorder so that the VTR indicator in the display window lights.

D-3



To Select the Monitor Sound

You can select the monitor sound of various kinds of the recorded tape with the AUDIO MONITOR selector.

Audio recording pattern on a video tape D-3

ⓐ shows the standard track.
ⓑ shows the PCM track.

Kind of recorded tape	Track to be played back	Setting of the AUDIO MONITOR selector
Stereo ⓴	PCM	PCM
FM simulcast	PCM	PCM
SAP (Second Audio Programs) ㉙	PCM and/or standard	To monitor MAIN: PCM To monitor SAP: STD To monitor both: MIX
Audio dubbed ㊺	PCM and standard	MIX

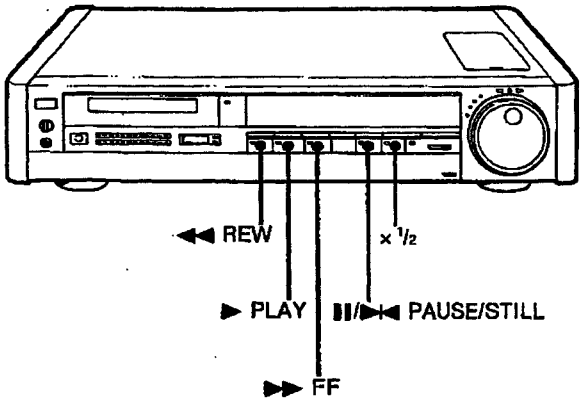
To record the above kind of tapes, refer to the pages in ●

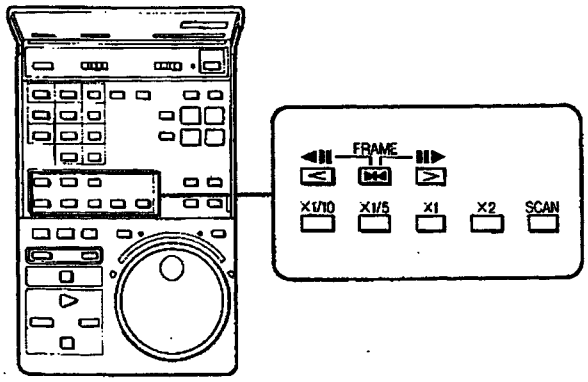
If the sound is not heard or heard only intermittently
When a tape which has been recorded on a video camera recorder or a video cassette recorder without the PCM function is played back on this unit, set the AUDIO MONITOR selector to STD. The PCM indicator may blink, but it does not affect the sound.

When the TV without the video/audio inputs is connected
Connect your stereo system to this unit to monitor the stereo sound.

Various Playback Modes

E-1





Using the Buttons on the Remote Commander or the VCR E-1

Still picture (playback pause)

Press II/▶I◀ PAUSE/STILL during playback. The sound will be muted. To resume normal playback, press ▶ PLAY.

Double speed playback

Press x2 during playback. The sound will be heard. To resume normal playback, press ▶ PLAY.

Picture search — Viewing the picture at a fast speed to find a particular scene

Keep pressing ◀◀ REW or ▶▶ FF during playback or in still picture mode. Release the button to resume normal playback.

Using the Buttons on the Commander Only E-1

Slow speed playback

Press x1/10 or x1/5 during playback. Slow motion picture at 1/10 or 1/5 normal speed will be obtained. The sound will be muted. To resume normal playback, press ▶ PLAY.

Frame-by-frame playback

Press II▶ (forward) or ◀II (reverse) in still picture mode. To resume normal playback, press ▶ PLAY.

Locked picture search — Viewing the picture during fast-forward or rewind

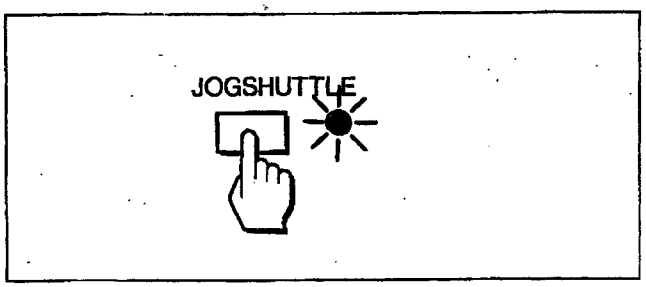
In normal playback or still picture mode, press > (forward) or < (reverse) to select the tape transport direction and then press SCAN. To resume normal playback, press ▶ PLAY.

If the still picture appears to shake
Press SLOW/STILL ADJ inside the upper compartment until the picture stabilizes.

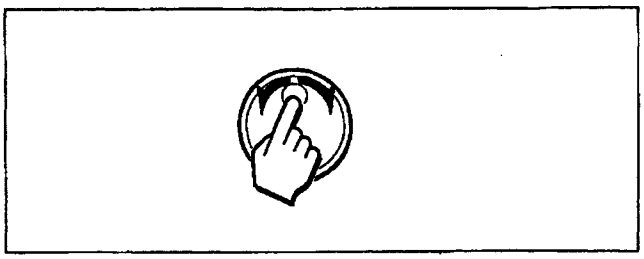
If noise band appears in slow speed playback
Adjust SLOW/STILL ADJ. When the tape speed (SP/LP) is changed, readjust it.

When the unit is in picture search mode
Streaks will appear and sound will be muted.

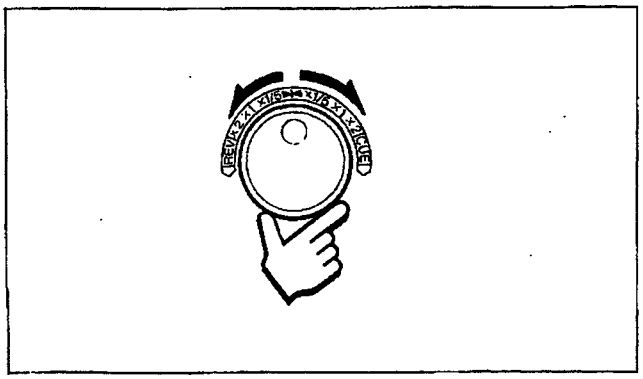
E-2



E-3



E-4



Using the JOG dial and SHUTTLE ring

1 Set the unit to the still picture mode.

2 Press the JOGSHUTTLE button on the Commander to turn on the indicator if the Commander is to be used. E-2

3 Turn the JOG dial.
Playback occurs according to the speed at which you turn the dial. (x1/10, x1/5, normal speed) E-3

Turn the SHUTTLE ring and hold it at the desired speed position.
The approximate positions of the various speeds are indicated on the Commander (x1/5, normal, double, continuous picture search). E-4

Turn it clockwise for forward playback, or counterclockwise for reverse playback.

4 When you release JOG or SHUTTEL, the picture will freeze again.

Notes
- When JOG or SHUTTLE is in use, no tape transport buttons function.
- If the JOGSHUTTLE button on the Commander is pressed during playback, the CHANNEL of the JOG dial mode indicators on the VCR will light and the playback speed cannot be changed with the JOG dial on the VCR.

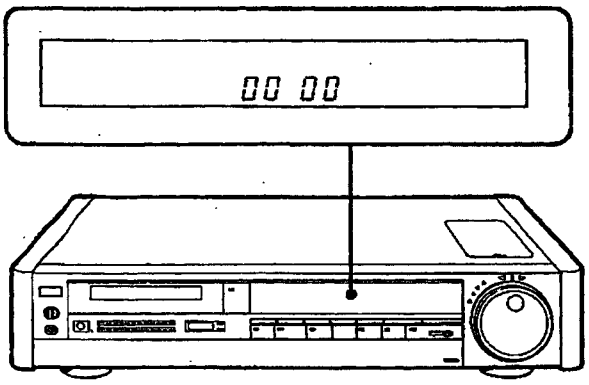
Using the Tape Counter

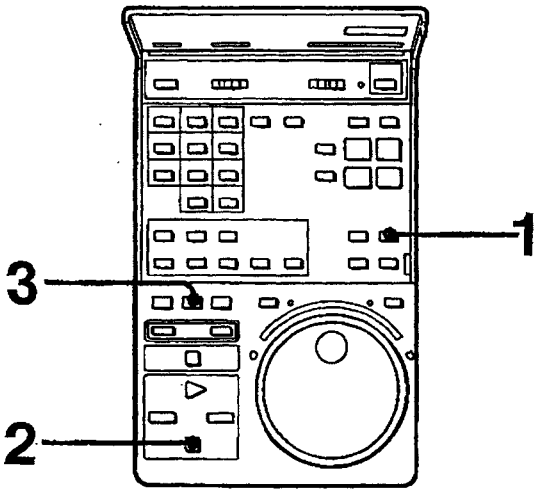
The tape counter in the display window indicates the approximate running time of the tape and the relative positiion of programs on the tape.

To Index the Tape Contents

Press the COUNTER RESET at the beginning of the tape to set the counter to zero. By noting the counter reading at a particular point, you can easily find that point later by referring to the counter.

F-1





To Stop the Tape at a Particular Point — Tape Return F-1

1 During recording or playback, press COUNTER RESET at the point you want to locate later.

2 When recording or playback is finished, press ■ STOP.

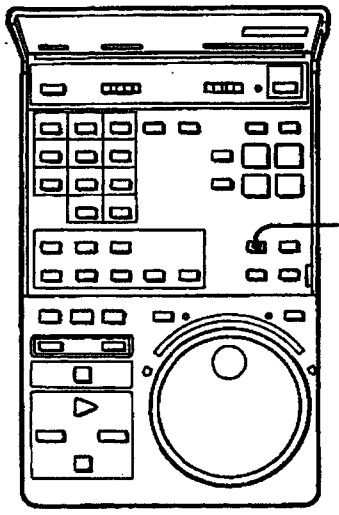
3 Press TAPE RETURN.
The tape will be rewound or advanced close to the counter zero point.

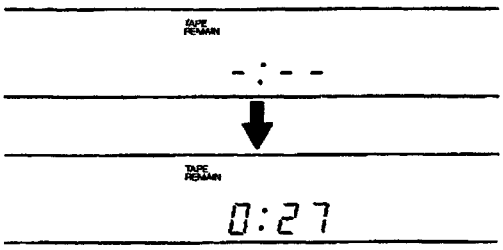
To Start Playback Automatically from the Counter Zero Point — Tape Return Play

1 Follow steps 1 to 3 in "Tape Return" above.

2 Press ► PLAY while the tape is being rewound or advanced.
The tape will be rewound or advanced close to the counter zero point and start playback.

F-2





To Get to Know the Remaining Recording or Playback Time F-2

During recording or playback, press COUNTER/REMAIN. After the counter shows "–:––" for 5 to 20 seconds, the remaining recording or playback time will be displayed.
The illustration shows that the remaining time is 27 minutes.

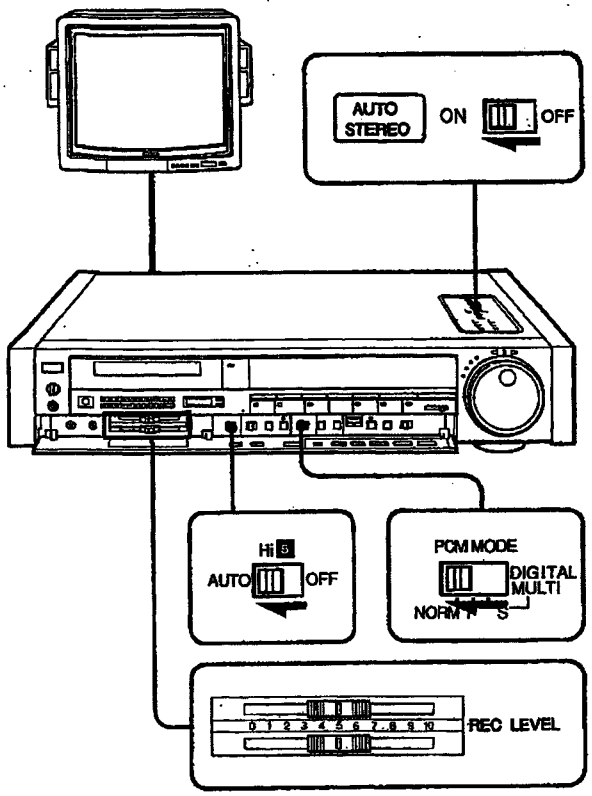
To return to the normal tape counter
Press COUNTER/REMAIN again.

Notes on the remaining time counter
- The remaining time counter may not be accurate for
  — commercially available recorded tapes.
  — damaged tapes and non-standard tapes.
  — the beginning of a tape, especially when the tape has just been rewound (by several minutes max.).
- The remaining time counter will be changed to "–:––" when an unrecorded portion of the tape is played back, when the recorded tape speed has been changed, or when the tape is run rapidly.

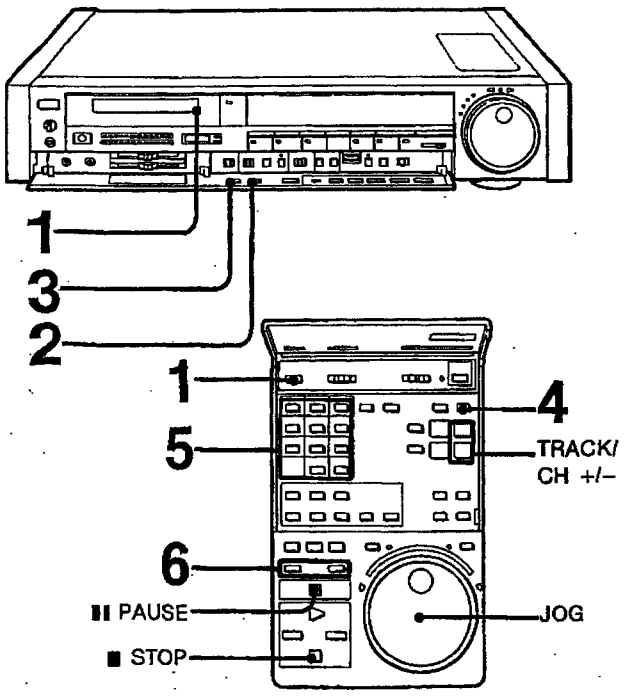
Notes on the remaining time counter in various speed playback modes
- When you want to display the remaining time during x2 forward, x1 reverse or x2 reverse playback, press COUNTER/REMAIN to display the remaining tape counter after playing back the tape in normal playback mode and then resume the desired playback mode.
- The remaining time counter will stop when the VCR is set to frame-by-frame or slow motion picture mode.

Recording TV Programs

G-1



G-2



Make sure that you have finished all the connections and adjustments through pages 47 to 55.

Preparation G-1

- Turn on the TV and select the video input on the TV or select the channel for the recorder.
- REC LEVEL controls: 5 position
  Hi 8 switch: AUTO
  PCM MODE selector: NORM
  AUTO STEREO selector: ON

Operation G-2

You can also use the buttons on the VCR with the same name or mark as those on the Commander.

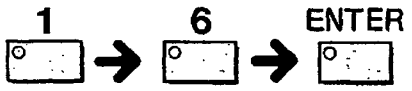
1 Press OPEN/CLOSE and insert a cassette.
The power will be automatically turned on.
Press OPEN/CLOSE again to close the cassette holder.

2 Select the recording speed (SP or LP).

3 Press INPUT SELECT so that the TUNER indicator appears in the display window.

4 Press TV/VTR so that the VTR indicator appears in the display window (only for a TV which is connected to the VHF/UHF INPUT on this unit).

5 Select the channel to be recorded with the number buttons.
e.g. To select channel 16



You can select the channel by scanning with TRACK/CH +/– or JOG.

6 Press two ● REC buttons simultaneously (or slide ● REC on the VCR to the right) to start recording.

To stop recording

Press ■ STOP.

To stop recording momentarily

Press II PAUSE.
To resume recording, press II PAUSE again or ▶ PLAY.
To protect the video heads and the tape, the pause mode will be automatically released after about 7 minutes and recording will stop.

When the recording is made to the end of the tape during recording

The tape will be automatically rewound to the beginning and the unit will enter the stop mode. The power remains on.

To make a frame-by-frame recording

To tape an animated program, proceed as follows: Press ● REC buttons on the Commander or slide ● REC to the right on the VCR while the unit is in recording pause mode. A very short recording of approximately 7 or 8 frames will be made and then the VCR will automatically enter recording pause mode again. Repeat this operation as many times as you like.

To watch one TV program while recording another
Press TV/VTR so that the VTR indicator goes off. Select the channel you want to watch on the TV.
If your TV is equipped with a TV/VTR input selector, simply set the selector to TV and select the desired channel on the TV.

If the cassette is ejected when the ● REC buttons are pressed
The tab on the cassette is slid out. Slide the tab in or use a new cassette.

If a stereo program is noisy
Set AUTO STEREO to OFF. The noise will be reduced though the sound is heard in monaural.

If you started recording of an unnecessary scene
You can return the tape to the desired point and set the VCR to recording standby mode.

1 Press ■ STOP to stop recording.
2 Press ▶ PLAY and then press ❚❚/▶◀ to set the VCR to playback pause mode.
3 Locate the desired point where you wish to start recording by turning the JOG dial counterclockwise.
4 Press the ● REC buttons. The VCR will enter recording pause mode.
5 At the desired point, press ❚❚/▶◀ PAUSE/STILL to release pause mode.
Recording will begin.

To Record Multichannel TV Sound (MTS) Broadcasts

To record a stereo broadcast

When a stereo program is received, the STEREO indicator will appear in the display window. With the usual recording procedure, the program will be recorded in stereo on the PCM track and in monaural on the standard track.

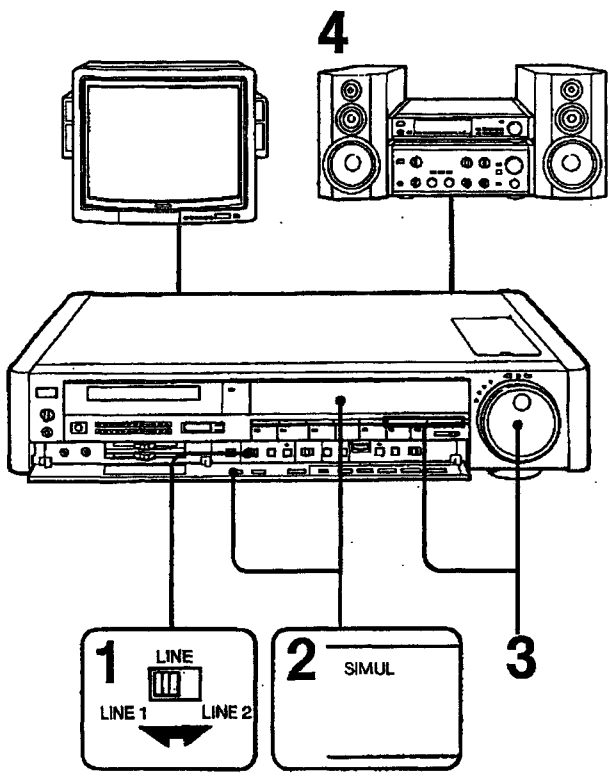
- Make sure AUTO STEREO inside the upper compartment is set to ON.

To Record a SAP (Second Audio Program) broadcast

Press the STD AUDIO selector so that the SAP indicator appears in the display window. The SAP sound will be recorded on the standard track while the MAIN sound is recorded on the PCM track. To record a MAIN broadcast only, press STD AUDIO to display the MAIN indicator. The MAIN sound will be recorded on both the PCM and standard tracks.

When a SAP sound is not to be recorded
Be sure to set the STD AUDIO selector to MAIN. If it is set to SAP and there is no SAP broadcast, no sound is recorded on the standard track.

G-3



FM simulacast recording G-3

Sometimes a TV station and an FM radio station will broadcast a program simultaneously.
By connecting an FM tuner you can record a TV program in high-fiderity stereo. The picture and sound of the TV program are recorded on the standard track and the sound from the FM tuner is recorded on the PCM track.

Operation

1 **Set LINE to either LINE 1 or 2 according to the line inputs connected to the FM tuner.**

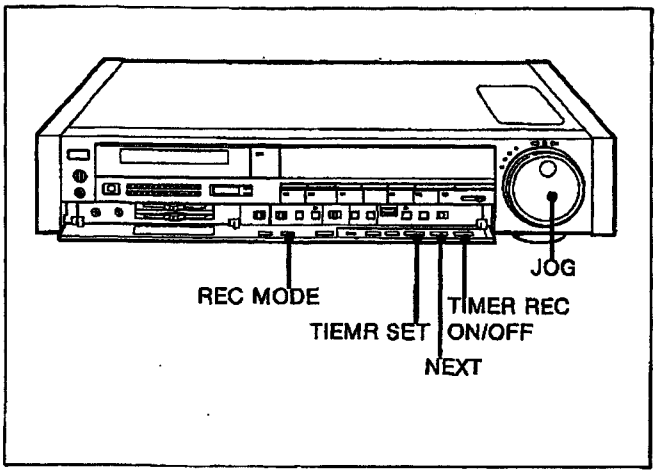
2 **Press INPUT SELECT so that the SIMUL indicator appears in the display window.**

3 **Select the channel you want to record on the VCR.**

4 **Select the station you want to record on the FM tuner.**

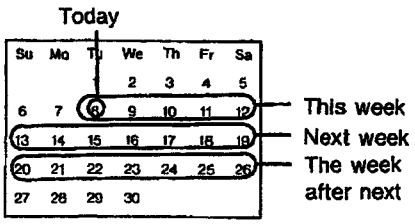
Timer-Activated Recording

H-1



You can preset up to six recordings to be made between today and Saturday of the week after next.

Example:


Today
Su Mo Tu We Th Fr Sa
2 3 4 5
6 7 8 9 10 11 12
13 14 15 16 17 18 19
20 21 22 23 24 25 26
27 28 29 30
This week
Next week
The week after next

Operation H-1

Preparation

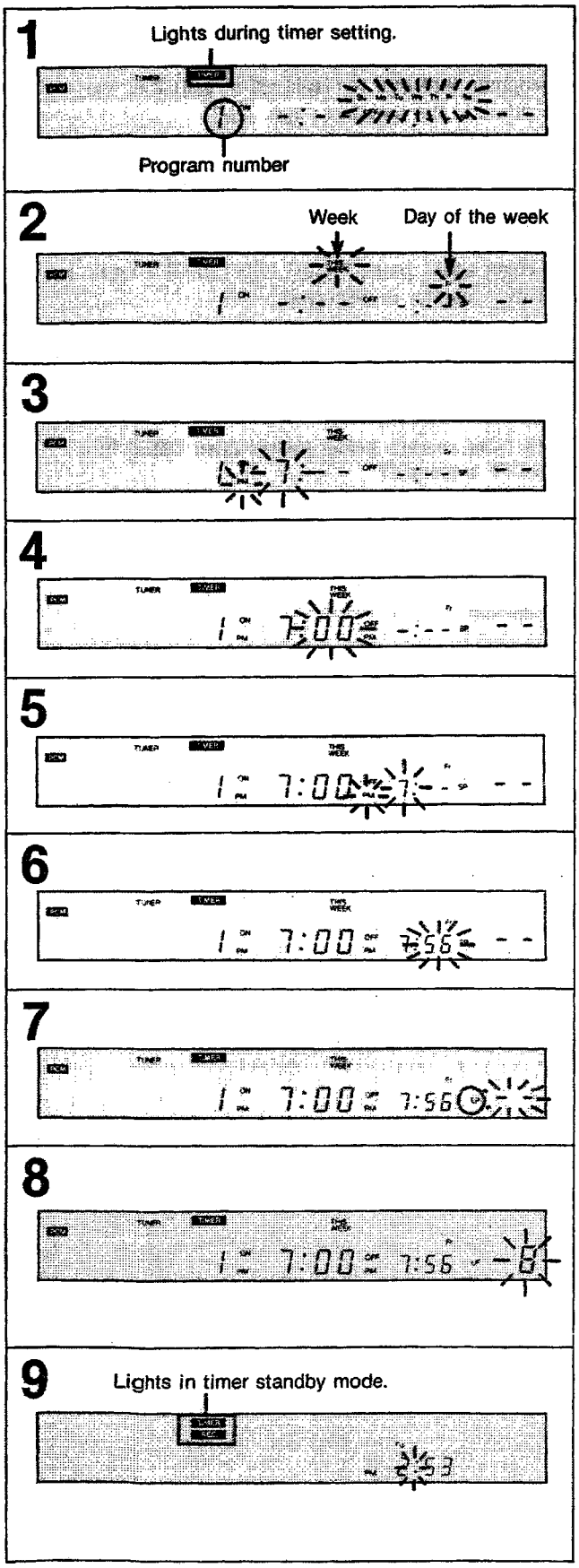
- The clock must be set correctly. For setting, see page 55.
- Be sure the safety tab of the cassette has not been slid out.
- Make sure the cassette tape is long enough to record all programs.
- INPUT SELECT switch: TUNER
  PCM MODE selector: NORMAL
  REC LEVEL controls: 5 position
  Hi 8 switch: AUTO

Buttons used for timer setting

NEXT button: Every time you press this button, the item to be set will blink.

JOG dial: To set the week and day, the turn-on and turn-off times and the channel, turn clockwise to advance and counterclockwise to reverse.

H-2



Operation H-2

Suppose you want to make a recording of channel 8 from 7 P.M. to 7:56 P.M. on Friday this week.

1 Press TIMER SET.

2 Set the week and day with JOG.
Then press NEXT.

3 Set the turn-on hour with JOG.
Then press NEXT.

4 Set the minute with JOG.
Then press NEXT.

5 Set the turn-off hour with JOG.
Then press NEXT.

6 Set the minute with JOG.
Then press NEXT.

7 Press REC MODE to select the recording speed (SP or LP).

8 Set the channel to be recorded with JOG.
Then press NEXT.

Approximately three seconds later the display window will change to the counter display. To preset another program, repeat steps 1 to 8. Up to 6 programs can be preset.

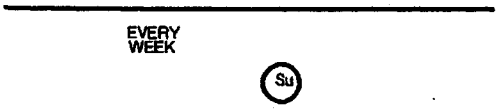
9 Press TIMER REC ON/OFF.

The power will be turned off and the VCR will enter the standby mode.

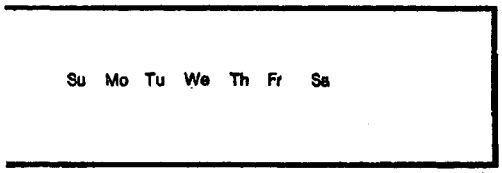
Recording will start at the preset turn-on time and will stop when the recording is completed. The power will be turned off automatically.

H-3

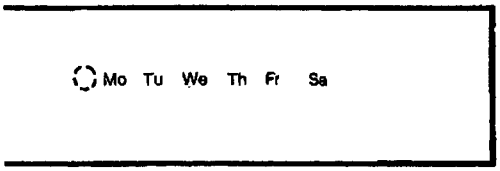
At the same time on the same day every week (e.g. every Sunday)



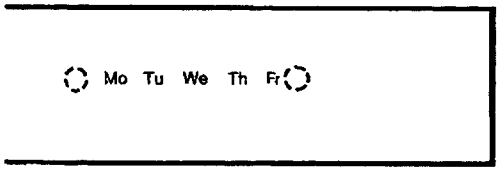
At the same time every day



At the same time every day from Monday to Saturday



At the same time every day from Monday to Friday



Every week recording and every day recording

You can preset a timer recording for the same time every day or for the same day every week.
Select the desired setting with JOG so that the appropriate indicator is displayed in step 2 of the procedure in the previous page. H-3

If you want to cancel the every week or every day recording one time only
Press TIMER REC ON/OFF so that the TIMER REC indicator goes off. When you want to begin regular timer recording again, press TIMER REC ON/OFF again so that the indicator is displayed.

If you want to correct the item during setting
Press CLEAR. Only the program which is currently being set will be cancelled. Reset the program.

Why is the cassette holder ejected when TIMER REC ON/OFF is pressed?
- No cassette is inserted.
- The safety tab of the cassette inserted is slid out.
- The tape is at its end.

To make timer recordings of the signals input from audio equipment
See page 28.

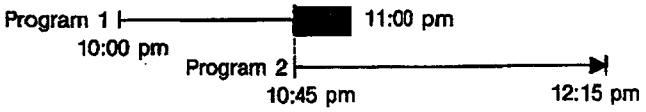
Buttons which can be operated while the TIMER REC ON/OFF indicator is displayed
Only CHECK and TIMER REC ON/OFF are operable.

To stop recording during a timer-activated recording
Press TIMER REC ON/OFF. The recording will stop and the power will be turned off. The ■ STOP and ❚❚/▶◀ PAUSE/STILL do not function.

When a timer recording is completed
- The memory for the recording will be erased if it is for only one day, and the timer program number will advance by one.
- When the tape reaches its end before the turn-off time, recording will stop and the power will be turned off. The tape will not be automatically rewound.

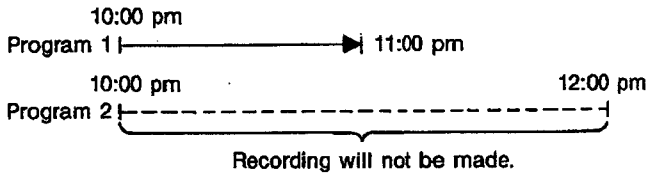
When the presettings of your timer-activated recordings overlap

The recording of program 2 will begin before program 1 is finished. The overlapped portion on program 1 will be cut off.



If the turn-on time of two programs is the same

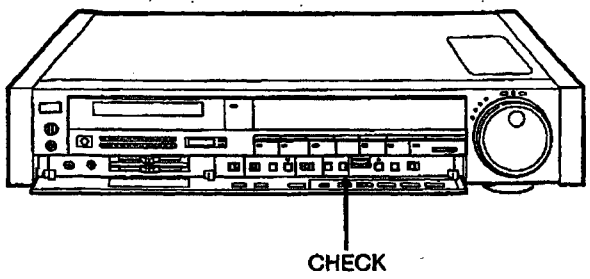
A recording of the program having the lower program number will be made. The memory of the program having the higher number will be cleared.



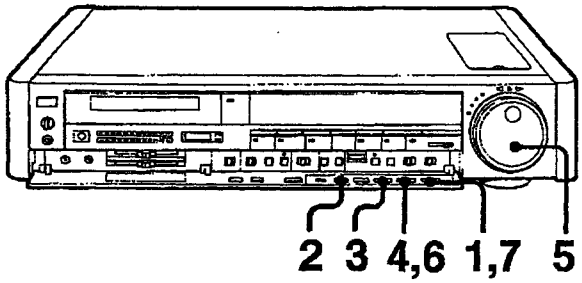
If a power interruption occurs

- If it occurs before a timer recording starts, memory for the timer recordings will be cleared. Reset the clock and preset the timer recordings. A short power interruption of less than approximately 20 seconds does not affect the memory.
- If it occurs during a timer recording, recording will stop and the power will be turned off. If the power interruption was less than approximately 20 seconds, the recording will resume.

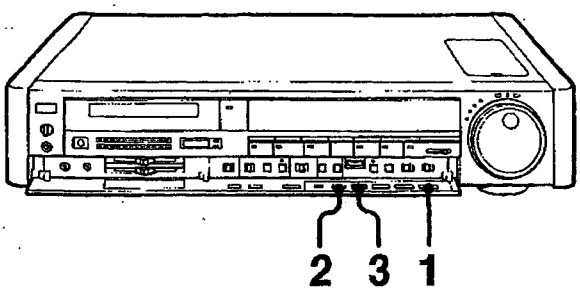
H-4



H-5



H-6



Checking the Timer Settings H-4

Press CHECK. Every time you press CHECK, each program will be displayed in the display window.

Changing the Timer Settings H-5

1 **Press TIMER REC ON/OFF so that the TIMER/ REC indicator goes off.**

2 **Press CHECK repeatedly until the program you want to change is displayed.**

3 **Press TIMER SET.**

4 **Press NEXT until the item to be changed blinks.**

5 **Change the setting with JOG.**

6 **Press NEXT until the counter display appears.**

7 **Press TIMER REC ON/OFF so that the TIMER/ REC indicator appears again.**

Cancelling the Timer Setting H-6

1 **Press TIMER REC ON/OFF so that the TIMER REC indicator goes off.**

2 **Press CHECK until the program you want to cancel is displayed.**

3 **Press CLEAR. The memory for the program will be erased.**
If other programs have been preset for recording, press TIMER REC ON/OFF again to reactivate the timer.

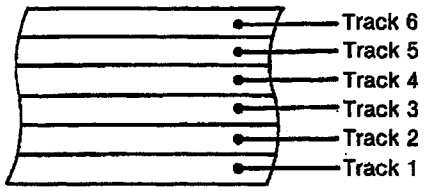
Using the VCR Before Timer-Activated Recording Starts

Press TIMER REC ON/OFF so that the TIMER REC indicator goes off.
After using the VCR, press TIMER REC ON/OFF again so that the TIMER REC indicator appears.

Note on the PCM MODE selector
A timer-activated recording for a TV program will not start unless PCM MODE is set to NORM. Blinking of a program number while checking timer settings indicates that PCM MODE is not set to the correct position for that setting.

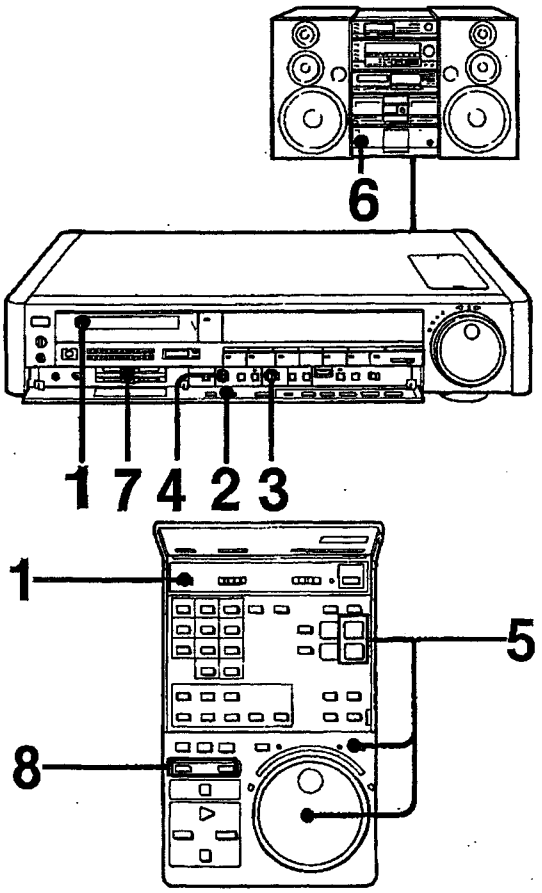
PCM Recording and Playback — Digital Multi Audio System

I-1



Normally both the video and audio signals are recorded on your video tape. However, in digital multi audio recording the full width of the tape will be divided into six tracks (Track number 1 to 6) and you can record only audio signals on each track in stereo. I-1
Up to 4-hour recording can be made on each track, which allows up to 24-hour continuous PCM recording with one cassette tape (with P6-120 cassette on LP mode).

I-2



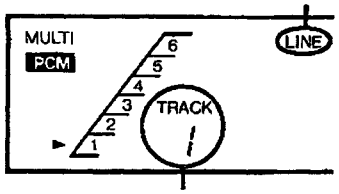
Recording I-2

1 Insert a cassette.

2 Select the tape speed (SP or LP).

3 Set PCM MODE to either DIGITAL MULTI S or P position.
(Either will do.)

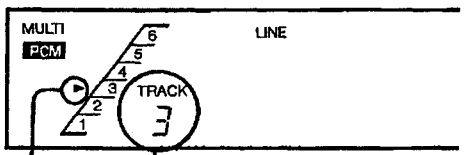
Display window — Automatically appears.



Track number

4 Set LINE to LINE 1 or LINE 2 according to the line inputs connected to an audio system.

5 Select the track on which audio recording should be made.
— Press TRACK/CH +/–.
or
— Press TRACK/CH/INDEX and then turn JOG.



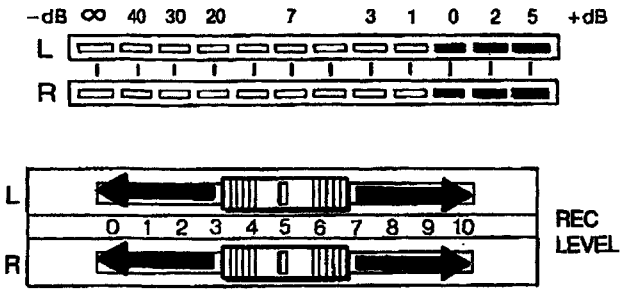
Track number
Move to the desired track.

6 Turn on the power of an audio system and set it to playback mode.

7 Adjust REC LEVEL.
See "Recording level adjustment" on page 28.

8 Press the ● REC buttons.

I-3



Recording level adjustment I-3

While watching the peak program meter, manually adjust REC LEVEL.

Appropriate recording level

Recording sources with medium or lower frequency signals (e.g. vocals): Adjust so that the first red element lights at the highest signal level (0 dB).
Recording sources with medium or higher frequency signals (e.g. trumpets, treble sound of violin): Adjust so that the element immediately before the first red element lights (−1 to −3 dB).

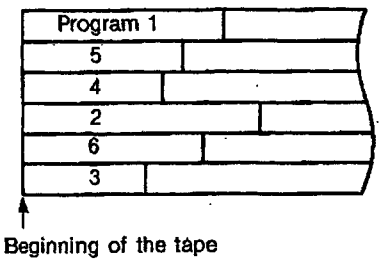
Notes on the REC LEVEL controls and the peak program meter

- During playback, the peak program meter shows the peak of the recorded level.
- After recording, it is recommended that the REC LEVEL controls are set to the miminum levels for playback. These controls do not affect the volume during playback but noise may appear when stopping playback and this may damage the speakers.

If you make a digital audio recording through a PCM digital audio processor which is not based on the 8 mm PCM standard

PCM recording can be made on 16 bits using the full width of the tape. In this case, set SHARPNESS to the position between the center and SHARP. Select SP tape speed.

I-4



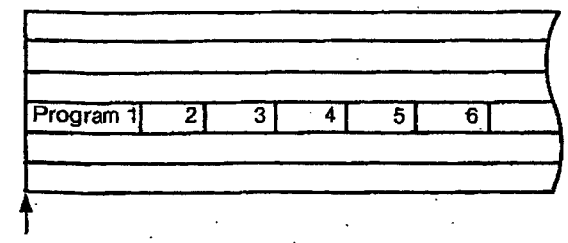
Timer-Activated FM Recording

By connecting an FM tuner with timer setting function (Sony ST-S333ES, ST-S555ES, etc.), you can preset up to six FM programs for recording in PCM digital sound. You can select parallel or series recording by switching the PCM MODE selector.

Parallel recording I-4

Set PCM MODE to DIGITAL MULTI P.
Up to six programs can be recorded from the beginning of any of six separate tracks (e.g. when you want to record different kinds of program separately).
The illustration of an enlarged tape shows that the program 1 to 6 are to be recorded on track number 1 to 6.

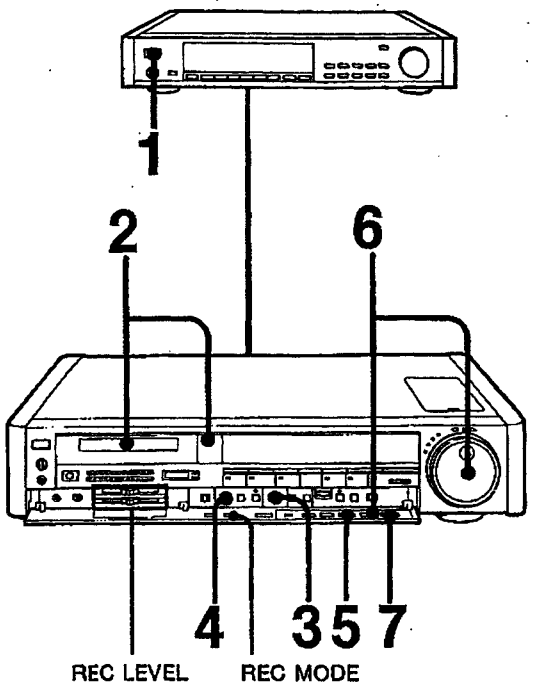
I-5



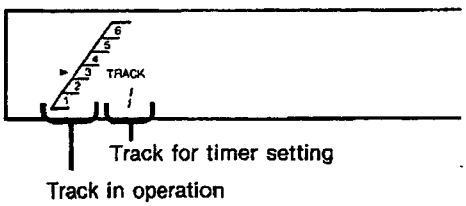
Series recording I-5

Set PCM MODE to DIGITAL MULTI S.
Up to six programs can be recorded continuously on one track (e.g. when you want to record a serial program every day).
The illustration of an enlarged tape shows that the program 1 to 6 are to be recorded on track number 3 successively.

I-6



I-7



Operation I-6

Before setting the timer
- Make sure the clock is set correctly.
- Set REC LEVEL to the [5] position.
- Select the tape speed (SP or LP).
- Connect an FM tuner to AC OUTLET and to LINE IN 1 or LINE IN 2 AUDIO.

1 Turn on the power of an FM tuner and preset programs.

2 Insert a cassette.

3 Set PCM MODE to DIGITAL MULTI P or S.

4 Set LINE to LINE 1 or LINE 2 according to the line inputs connected to the FM tuner.

5 Press TIMER SET.

6 Set the following items with JOG and NEXT.
- Track number
- Day of the week
- Turn-on time
- Turn-off time

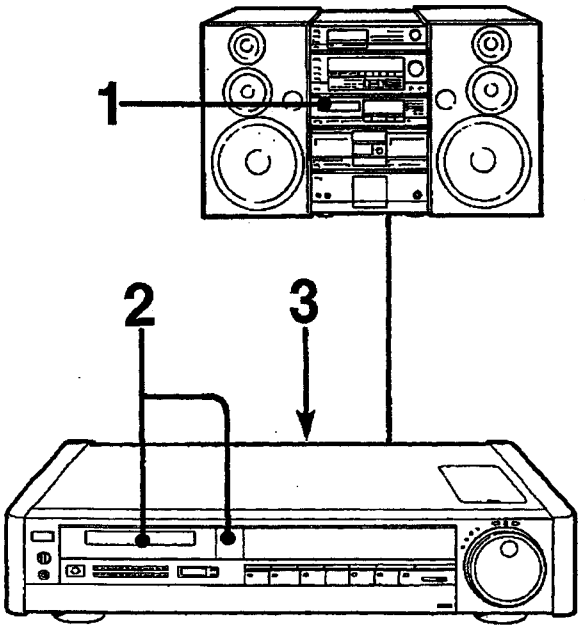
For details, refer to "Timer-activated recording" on pages 22 and 23.

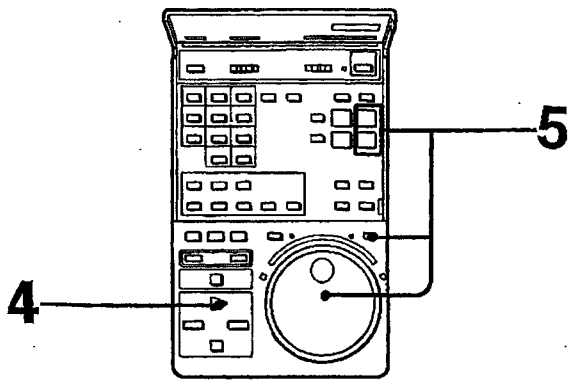
7 Press TIMER REC ON/OFF.
The power will be turned off.

To select the track for timer-activated PCM recording I-7
Both the track in operation and that for timer setting will be shown in the display window. Select the track for timer setting with JOG. To select the playback track, use the CHANNEL/TRACK/INDEX +/– button.

Notes
- In series recording, always select the same track number. If a different track number is selected, all the programs will be recorded on the track which was selected last.
- Timer setting of a TV program recording and a digital audio recording can be made on one tape. However, such setting is not recommended because you have to switch the position of PCM MODE before each recording starts.

I-8





Playback I-8

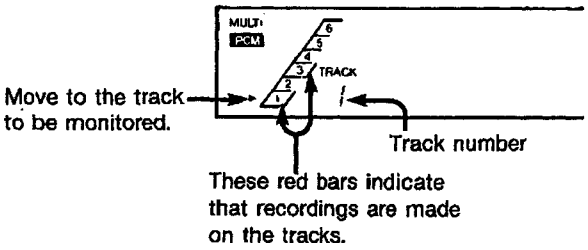
1 Turn on an audio system and select the video input on an amplifier.

2 Insert a cassette.

3 Set DIGITAL MULTI PLAY at the rear to AUTO.
If no sound is heard with the tape recorded on other VCR, set the selector to MULTI.

4 Press ▶ PLAY.

5 Select the track to be monitored.
— Press TRACK/CH +/–.
or
— Press TRACK/CH/INDEX and then turn JOG.



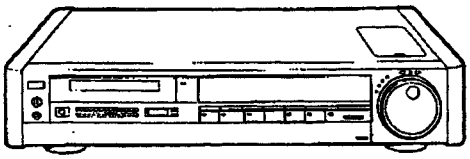
To stop playback
Press ■ STOP.

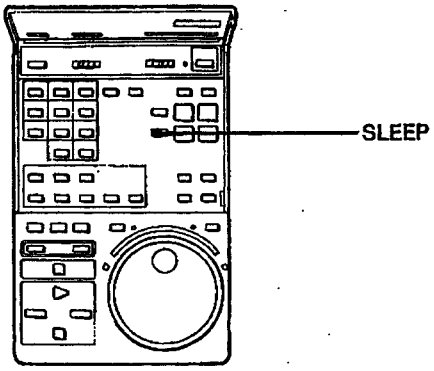
To stop playback momentarily
Press II/▶|◀. Press again to resume playback.

Notes
- When DIGITAL MULTI PLAY is set to MULTI, all red bars will light regardless of the recorded or unrecorded tracks.
- During playback, it is recommended that the REC LEVEL controls are set to "0" position, otherwise noise may appear and this may damage the speakers when stopping playback.

To Have the Unit Turned Off Automatically — Sleep Timer

[J]





You can set the unit to turn off automatically during recording or playback after a certain time, up to 5 hours, in steps of 30 minutes.

Every time you press SLEEP, the recording/playback duration will change as follows:

0:30 (To turn off 30 min. later) → 1:00 (1 hr.) → 5:00 (5 hrs.)
↑ ← Current time display ←

Operation [J]

- Make sure the clock is set correctly.

1 Press SLEEP during recording or playback.
The current time display will change to the SLEEP timer duration display.

2 Press SLEEP repeatedly until the desired recording/playback duration appears in the display window.
The power will be turned off automatically when recording/playback has been made in preset duration.

To cancel the SLEEP timer function
Press SLEEP repeatedly until the current time display appears.

When the tape reaches the end before the preset duration
It will be automatically rewound but the power will remain on during the preset duration.

If you press SLEEP when the unit is in stop mode
The SLEEP button is operable in stop mode. You can set the sleep timer before starting recording or playback.

Index Function

The desired programs can be easily located by the index signal marked on the tape.

Marking Index Signals

To mark index signals automatically

Set AUTO INDEX inside the upper compartment to ON. An index signal is automatically marked on a tape when ● REC are pressed or timer-activated recording starts.

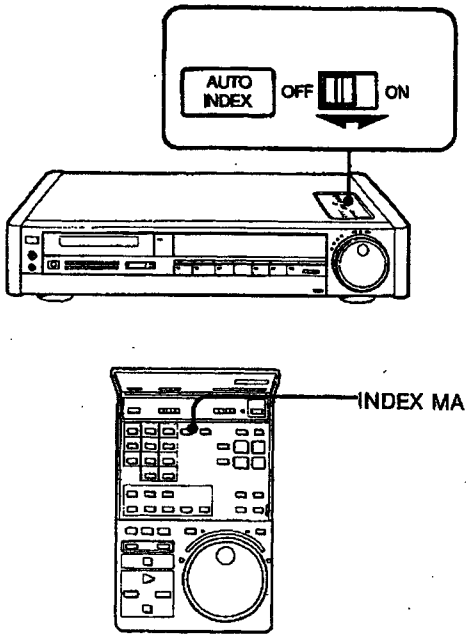
You cannot mark an index signal automatically
- on a tape when a recording is started by releasing the recording pause or playback pause mode
- on a tape where the tape speed (SP/LP) has been changed.

K-1

To mark index signals manually K-1

1 Set AUTO INDEX to OFF.

2 During recording or playback, press INDEX MARK at the point where an index signal is to be marked.
The INDEX indicator in the display window blinks while the index signal is being marked.



You cannot mark an index signal by pressing INDEX MARK
- during editing (i.e. EDIT indicator lights).
- while playing back a tape which has no audio/video signals recorded on the PCM track (i.e. the PCM indicator is not displayed).

To mark index signals automatically during digital multi audio recording — Auto index function

Set AUTO INDEX to ON.
During recording, the unit searches for the blank portion between programs (music, etc.) and marks an index signal automatically.

Auto index function will not operate correctly

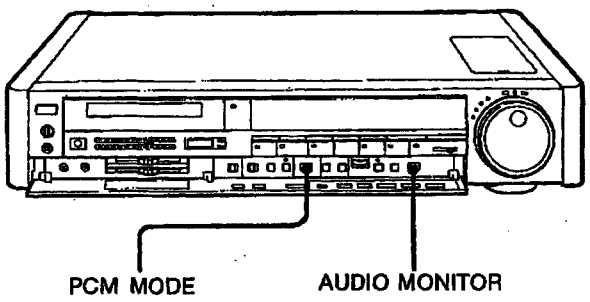
- when the blank portion between the programs is not detected due to low level signal-to-noise ratio of a program source.
- when the blank portion is less than 3 seconds.
- when an index signal is marked on other portions than blank in some program sources.

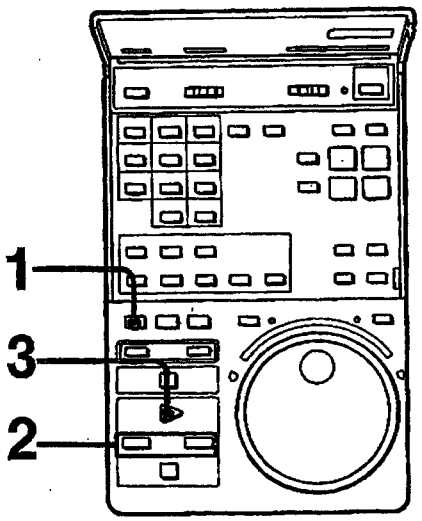
The index function can be activated
- when the unit is in PCM recording/playback mode as well as in normal recording/playback mode.
- even when playing back a tape whose safety tab is slid out.

A required interval at which index signals are marked
There should be more than a 2-minute interval between each index signal. If an index signal is marked at a shorter interval, the index signal may not be detected correctly.

When an index signal is being marked during playback
A black noise band will appear at the bottom of the playback picture and the sound will be lowered. However, the recorded signals on the tape are not affected.
If the EDIT button is pressed, a black noise band may disappear but the picture may be distorted.

K-2





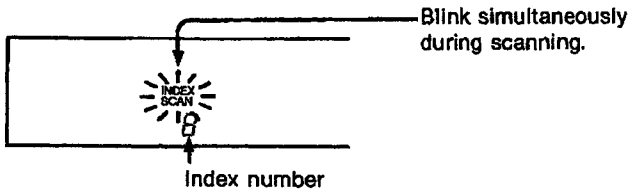
Playing back the beginning of each program in sequence — Index Scan K-2

Before operating

- Set PCM MODE to the appropriate position. See page 29.
- Set AUDIO MONITOR to the appropriate position. See page 13.

1 Press INDEX once when the unit is in stop or playback mode.

2 To scan the previous programs, press ◀◀ REW.
To scan the programs ahead, press ▶▶ FF.
The tape will be rewound or rapidly advanced to the next index signal marked.



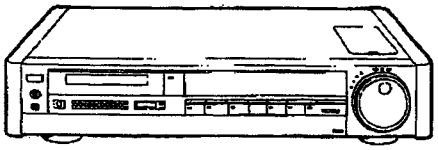
The tape will be played back for approximately 10 seconds, and then rewound or advanced to the next index signal. Each time an index signal is detected, the displayed index number will increase.

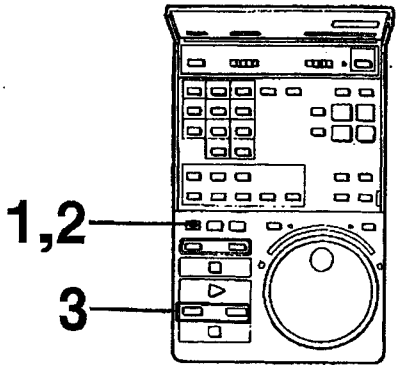
3 At the desired program, press ▶ PLAY.
Normal playback of that program will begin.

Notes

- If the tape is rewound to the beginning during index scan or index search, playback will begin automatically.
- If the tape reaches the end during index scan or index search, the tape will stop automatically.
- Index function may not operate correctly with a tape on which both normal and digital multi audio recordings have been recorded.
- When index scan is done using a digital multi audio recorded tape, set PCM MODE to P or S. Setting to NORM will cause sound distortion.

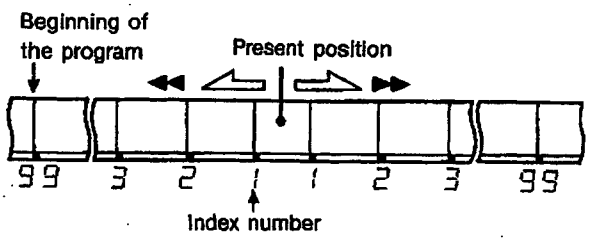
K-3



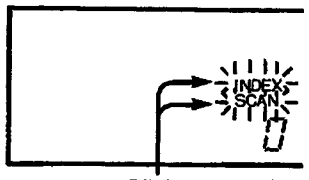


Locating the desired program — Index Search K-3

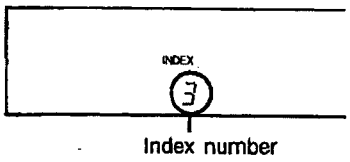
You can locate the desired program and play it back automatically by designating the number of the index signals to be detected.
Up to the 99th index signal from the present position on the tape can be located.



1 Press INDEX once when the unit is in stop or playback mode.



2 Press INDEX repeatedly until the index number of the desired program is displayed.

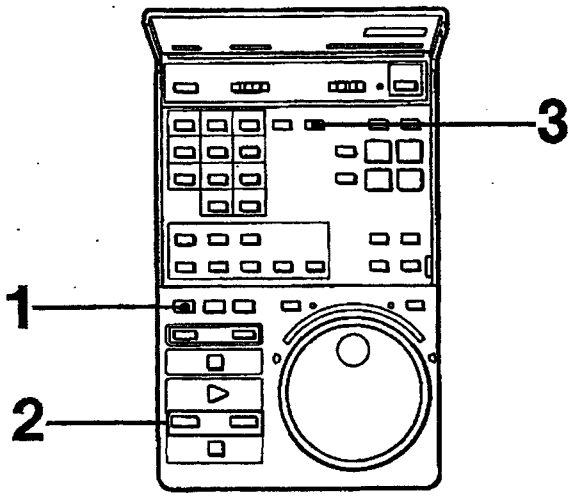


3 To locate the previous program on the tape, press ◀◀ REW.
To locate a program ahead, press ▶▶ FF.
The tape will be rewound or rapidly advanced. Every time an index signal is detected, the displayed number will decrease. When the number reaches 0, playback of your desired program will begin.

To designate larger index numbers

After pressing INDEX (step 1), select an index number by pressing TRACK/CH +/– or turning JOG.

K-4



Erasing Index Signals K-4

Erasing while index scanning — To erase the index signals in sequence

1 Press INDEX once.

2 Press ◀◀ REW to rewind the tape or ▶▶ FF to rapidly advance it.
Each time an index signal is detected, the tape will be played back for approximately 10 seconds and then rewound or rapidly advanced.

3 Approximately two seconds after playback has started by the index signal to be erased, press INDEX ERASE.
After the erasure, index scan will resume.
At each index signal to be erased, press INDEX ERASE.
To stop index scanning, press ■ STOP.

Erasing while index search — To erase a particular index signal

1 Press INDEX repeatedly until the number of the index signal to be erased is displayed.

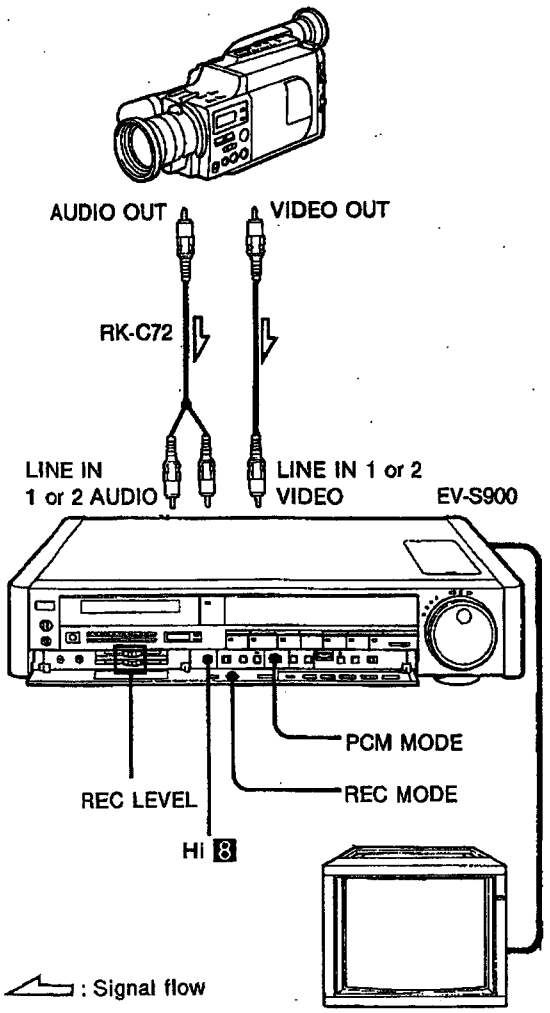
2 Press ◀◀ REW or ▶▶ FF.
The tape will be rewound or rapidly advanced until the designated index signal is located, and playback will begin.

3 Approximately two seconds after, press INDEX ERASE.
After the erasure, normal playback will begin.

Notes
- INDEX ERASE should be pressed within approximately 10 seconds after playback starts.
- The index signal cannot be erased if it is recorded on a portion where the recording tape speed has been changed.
- During erasing index signals, a black noise band will appear at the bottom of the picture and the sound will be lowered. However, this does not affect audio/video recording signals on the tape.

Transferring the Entire Contents of a Tape to Another

L-1



Editing a Home Movie Tape from Another VCR to This VCR L-1

Example: Playing back with the 8 mm video camera recorder and recording with this VCR

Connection

Use the supplied video connecting cord (equipped with yellow plugs) for video connection and the optional RK-C72 connecting cord for audio connection.

Preparation

- REC MODE button: SP or LP
- Hi 8 switch: AUTO
- PCM MODE selector: NORM
- REC LEVEL controls: 5

Operation

1 **Press INPUT SELECT so that the LINE indicator appears and set the LINE selector to LINE 1 or 2 according to the line inputs connected to the other VCR.**

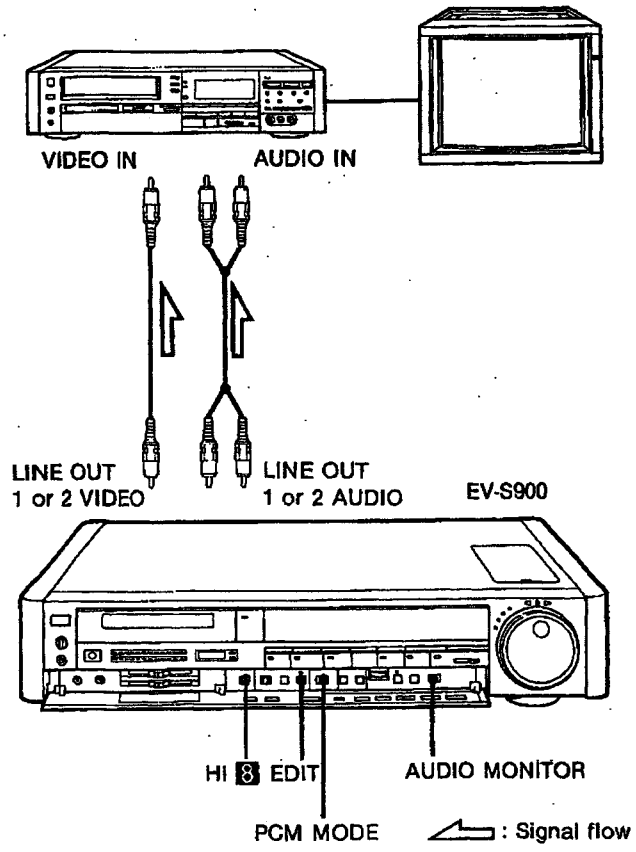
2 **Insert cassettes; a recorded cassette into the other VCR and a cassette for recording into this VCR.**

3 **Start playback with the other VCR and start recording with this VCR.**

If another VCR is equipped with an S VIDEO output connector
Connect it to LINE IN 1 S VIDEO of this unit instead of the connection between the phono-type video jacks. Use the supplied S VIDEO connecting cord.

When the audio outputs of another VCR are stereo
Connect the audio L/R jacks on another VCR to the LINE IN AUDIO L/R jacks on this VCR with the supplied audio connecting cord.

L-2



Editing a Home Movie Tape from this VCR to Another VCR L-2

Example: Playing back with this VCR and recording with a Beta or VHS format VCR

Connection

Use the supplied video connecting cord (equipped with yellow plugs) for video connection and the supplied audio connecting cord (equipped with red and white plugs) for audio connection. If the audio input of another VCR is monaural, use the optional RK-C72 connecting cord.

Preparation

- Hi 8 switch: AUTO
- PCM MODE selector: NORM
- EDIT button: ON (The EDIT indicator lights.)
- AUDIO MONITOR selector:
  Select the sound to be recorded. (See page 13.)

Operation

1 Set the input selector on the other VCR to LINE.

2 Insert cassettes; a recorded cassette into this VCR and a cassette for recording into the other VCR.

3 Start playback with this VCR and start recording with the other VCR.

Use of the EDIT button

- When editing a tape onto another VCR, press EDIT on this VCR so that the EDIT indicator lights. Loss of picture quality will be minimized. Be sure to turn off the indicator by pressing EDIT after editing.
- The picture and tone quality of a newly edited tapes will be noticeably impaired even if the EDIT button is activated. Avoid repetition of editing tapes.

Picture adjustment during editing

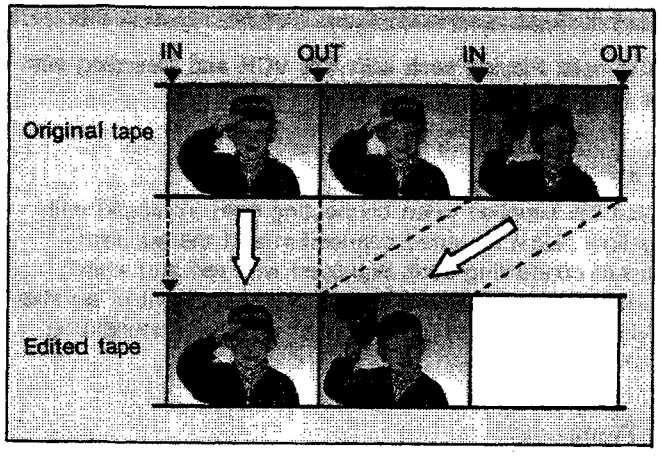
The SHARPNESS control does not function while the EDIT indicator is lit.

Note

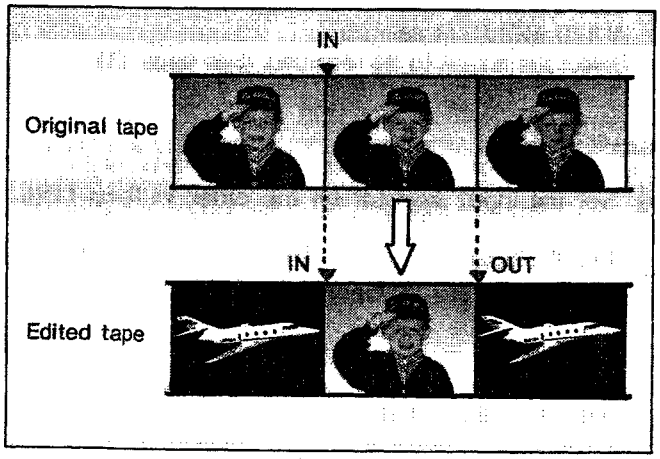
Do not connect the same VCR to both the LINE IN and LINE OUT jacks of this VCR. This may cause hum noise.

Various Tape Editing Methods

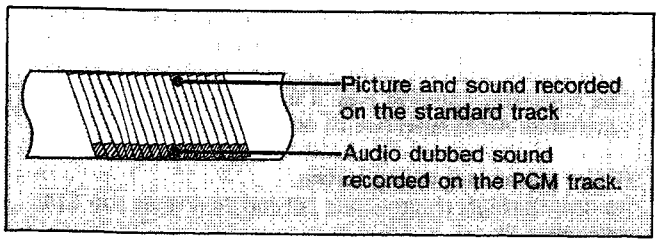
M-1



M-2



M-3



Various methods for easy and accurate tape editing are available with this VCR.
Select the best method according to your purpose and to the video/audio equipment you are using.

Assemble editing M-1

Only the desired portions of an original tape can be edited onto another tape one portion by one.
Decide the start point (IN) and end point (OUT) of editing on the playback VCR. Decide the start point of editing on the recording VCR.

Automatic assemble editing

With this method, editing of the assigned scenes can be carried out automatically in the assigned order. Use a VCR with the automatic assemble editing function as playback VCR or a video editing controller.

Insert editing M-2

A prerecorded portion of a tape can be replaced with a new scene. Decide the start point (IN) and end point (OUT) of editing on the recording VCR. On the playback VCR, decide the start point.

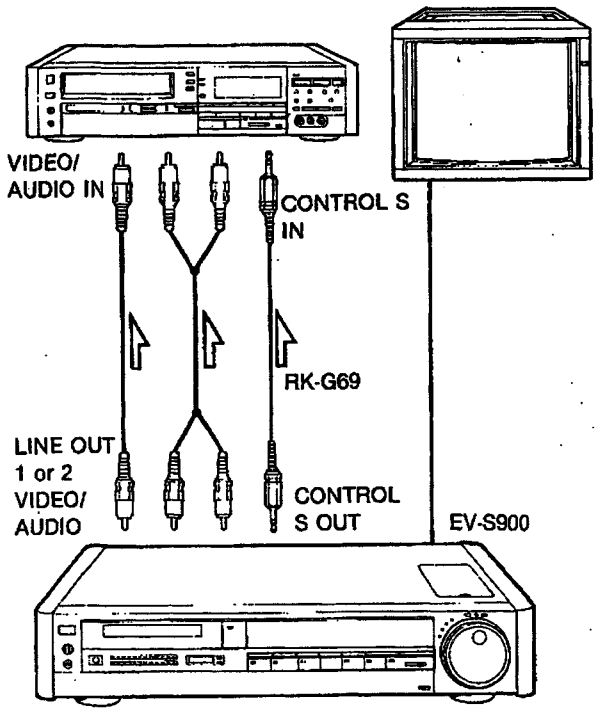
Audio dubbing M-3

The sound recorded on the PCM audio track of a tape can be replaced with a new sound without changing the picture and sound recorded on the standard track.

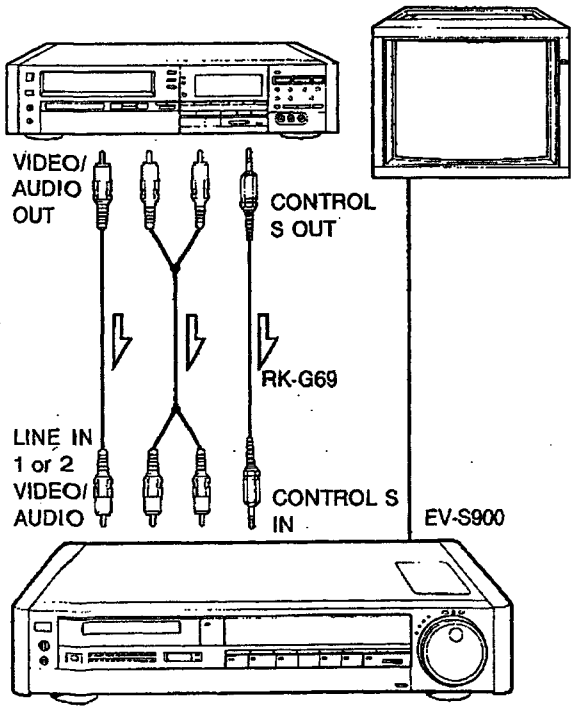
Notes
- The picture may be distorted at the end of an insert editing.
- The various playback pictures may be distorted when edited from/onto another VCR.

Synchronized Editing from/onto a Sony VCR with the Control Terminal

N-1



N-2



: Signal flow

If another VCR is equipped with a control terminal (CONTROL S, CONTROL L or REMOTE jack), the two VCRs can be operated simultaneously using the SYNCHRO EDIT button.

Connecting a VCR with the CONTROL S IN jack N-1

With this connection, use this unit for playback, and the other VCR for recording.
Use the optional RK-G69 connecting cord for CONTROL S connection.

Connecting a VCR with the CONTROL S OUT jack N-2

With this connection, use this unit for recording, and the other VCR for playback.
Use the optional RK-G69 connecting cord for CONTROL S connection.

To operate another VCR connected to the CONTROL S OUT jack of this VCR with the supplied Remote Commander

Set the command mode selector on the Commander according to the type of another VCR.

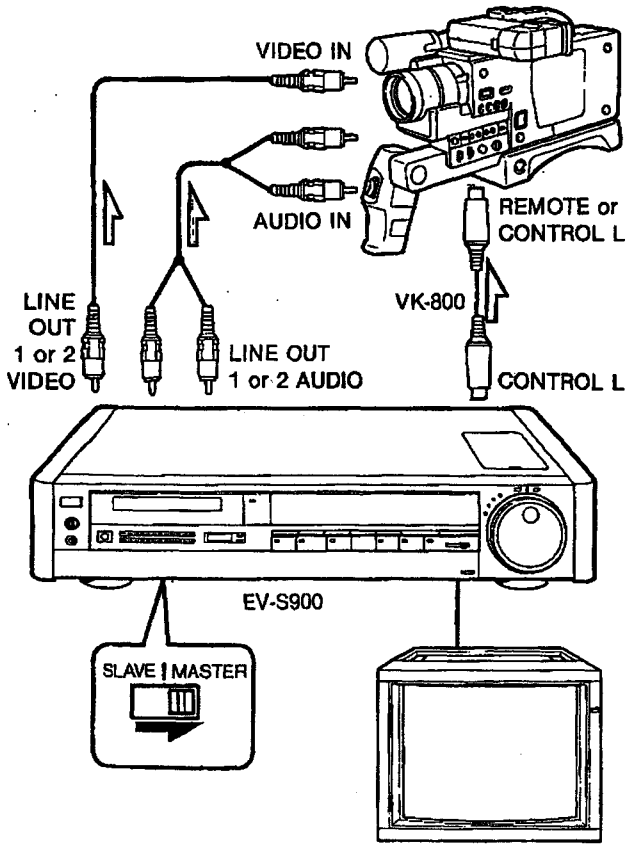
To operate a VCR without a command mode selector
VTR1: for a Sony Beta format VCR
VTR2: for a Sony 8 mm format VCR

To operate a VCR equipped with a command mode selector
Set the selector on the Commander to the same command mode as that selected on the VCR.

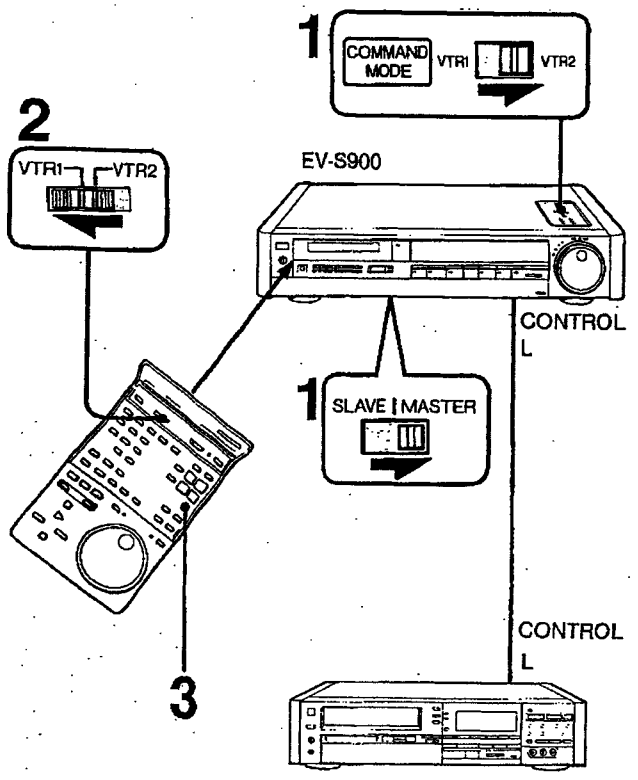
To operate this VCR with the Commander
Switch the command mode selector on this VCR to a different position from that selected for the other VCR, and set the command mode selector on the Commander to the same position as that selected on this VCR.

Notes on connection
- If another VCR is equipped with both CONTROL L and CONTROL S jacks, CONTROL S connection is recommended.
- If another VCR is equipped with an S VIDEO IN connector, connect it to the LINE OUT 1 S VIDEO connector of this unit instead of the connection between the phono-type video jacks. Use the supplied S VIDEO connecting cord.

N-3



N-4



Connecting a VCR or Video Camera Recorder with the REMOTE (or CONTROL L) jack N-3

With this connection, this unit is used for playback and the other VCR for recording.

- Use the optional VK-800 connecting cord for control L connection.
- Be sure to set the SLAVE/MASTER selector on the rear of this unit to MASTER.
  When set to MASTER, the control signal is transmitted through the CONTROL L connector for synchronized editing operation.

Notes

- If the other VCR is monaural, use the optional RK-C72 audio connecting cord.
- If the REMOTE jack of the video camera recorder is stereo mini-mini type, use the optional VK-810 connecting cord.

To operate the VCR connected to the CONTROL L connector with the supplied Remote Commander N-4

1 Set SLAVE/MASTER to MASTER and COMMAND MODE to VTR2 on this unit.

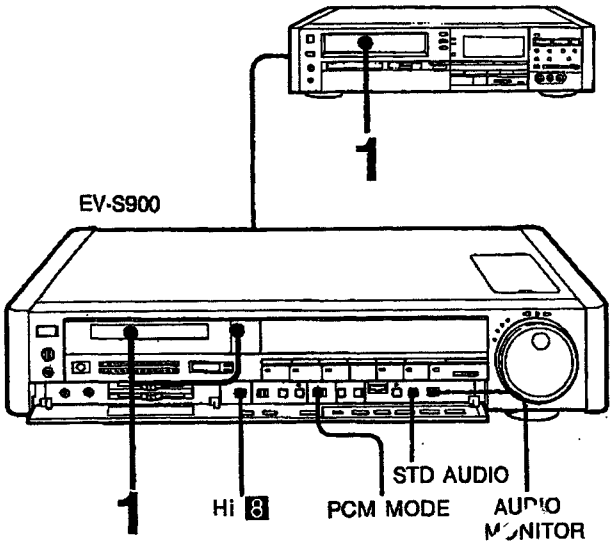
2 Set the command mode selector on the Remote Commander to VTR1.

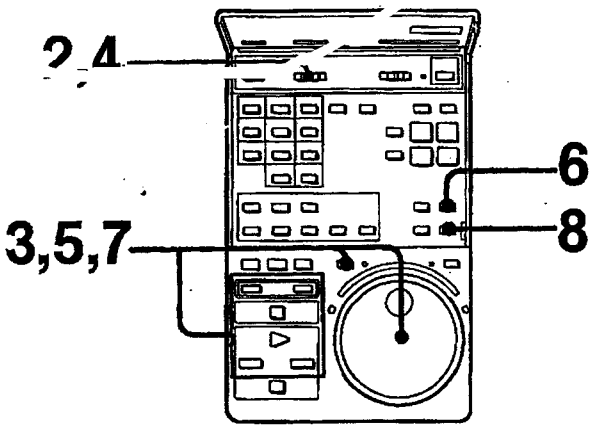
3 Point the Commander toward this unit and press the appropriate tape transport button on the Commander.
The connected VCR will operate.

To operate this VCR with the Remote Commander
Set the command mode selector on the Commander to VTR2.

Note
The command mode (VTR1, VTR2 or VTR3) of the other VCR is ineffective for the remote control operation through the CONTROL L connector.

N-5





During editing
The COUNTER RESET button does not function.

To cancel the assemble editing mode
Press SYNCHRO EDIT or ■ STOP on the Commander or the VCR.

When assemble editing starts
The EDIT indicator will light automatically and go out when the editing is completed.

Assemble Editing N-5

Use this unit for playback and the other VCR for recording.
For connection, see pages 39 and 40.

Preparation

- Hi 8 switch: AUTO
- PCM MODE selector: NORM
- AUDIO MONITOR selector: Select the sound to be recorded. (See page 13.)

Operation

1 Insert cassettes; a recorded cassette into this unit, and a cassette for editing into the recording VCR.

2 Set the command mode selector on the Commander to the appropriate position for the recording VCR.
For the setting, see pages 39 and 40.

3 Locate the point of the tape where you want to start editing on the recording VCR and set it to recording pause mode.

4 Set the command mode selector on the Commander to the appropriate position for this VCR.
For the setting, see pages 39 and 40.

5 Play back the tape on this unit to locate the end point to be edited and set the unit to playback pause mode.

6 Press COUNTER RESET.

7 Rewind the tape on this unit to the start point to be edited and set the unit to playback pause mode.

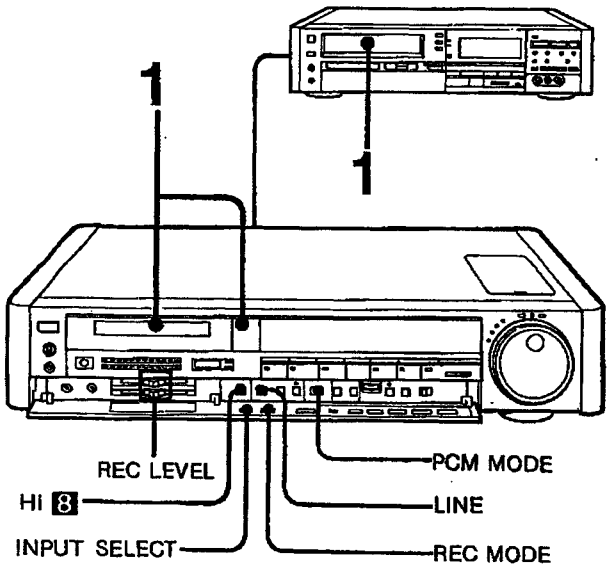
8 Press SYNCHRO EDIT.
The playback starts on this unit and the recording starts on the other VCR.

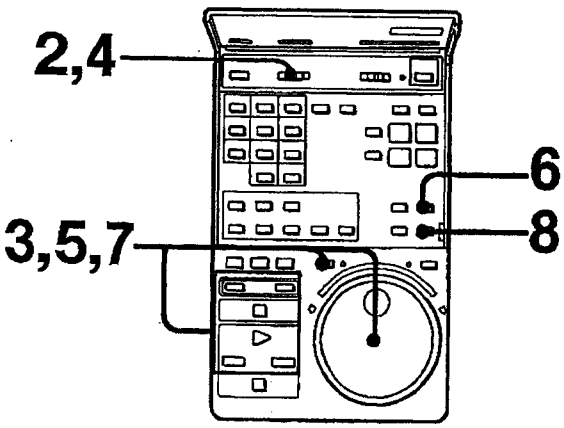
9 To edit the next scene, repeat steps 2 to 8.

When you use JOG/SHUTTLE to locate the editing points
Be sure to press SYNCHRO EDIT after the transmitting indicator goes out, otherwise the unit starts playback but may pause again.

When the editing is completed
Set both VCRs to stop mode.

N-6





When the editing is completed
Set both VCRs to stop mode.

To concel the insert editing mode
Press SYNCHRO EDIT or ■ STOP on the Remote Commander or the VCR.

When you use JOG/SHUTTLE to locate the editing points
Be sure to press SYNCHRO EDIT after the transmitting indicator on the Commander goes out, otherwise the unit starts recording but may pause again.

During insertion
The COUNTER RESET button does not function.

Insert Editing N-6

Use this unit for recording and the other VCR for playback.
For connection, see pages 39 and 40.

Preparation

REC MODE button: SP or LP
PCM MODE selector: NORM
Hi 8 switch: AUTO
REC LEVEL controls: 5
INPUT SELECT button and LINE selector: Select the line inputs connected to the other VCR.

Operation

1 Insert cassettes; a cassette for editing into this unit, and an insert source cassette into the playback VCR.

2 Set the command mode selector on the Commander to the appropriate position for the playback VCR.
For the setting, see pages 39 and 40.

3 Locate the start point to be inserted on playback VCR and set it to playback pause mode.

4 Set the command mode selector on the Commander to the appropriate position for this VCR.
For the setting, see pages 39 and 40.

5 Play back the tape on this unit to locate the point where the insertion should stop (end point) and set it to playback pause mode.

6 Press COUNTER RESET.

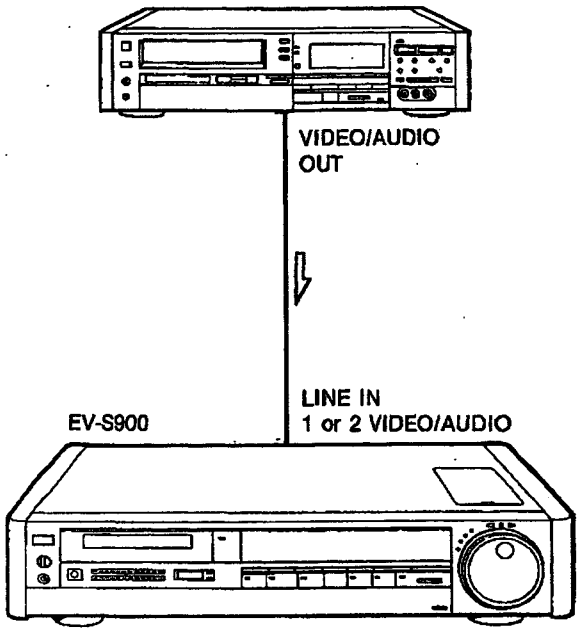
7 Rewind the tape on this unit to the point where the insertion should start (start point) and set it to recording pause mode.

8 Press SYNCHRO EDIT.
The recording starts on this unit and the playback starts on the other VCR.

When the counter display reaches zero point, indicating that the insertion is completed, this unit will enter recording pause mode and the other VCR will enter playback pause mode.

Manual Editing from/onto a VCR Not Equipped with Control Terminal

O-1



Connection

Using this VCR for recording O-1
For details on connection, see L-1 on page 36.

Using this VCR for playback O-2 (on the next page)
For details on connection, see L-2 on page 37.

Operation

Assemble editing

1 **Insert cassettes; a recorded cassette into the playback VCR, and a cassette for editing into the recording VCR.**

2 **Set the input selector on the recording VCR according to the inputs connected to the playback VCR.**

3 **Play back the tape on the recording VCR to locate the point where editing should start and set it to recording pause mode.**

4 **Play back the tape on the playback VCR to locate the start point to be edited and set it to playback pause mode.**

5 **Press ❚❚ PAUSE to release the pause mode on both VCRs simultaneously.**

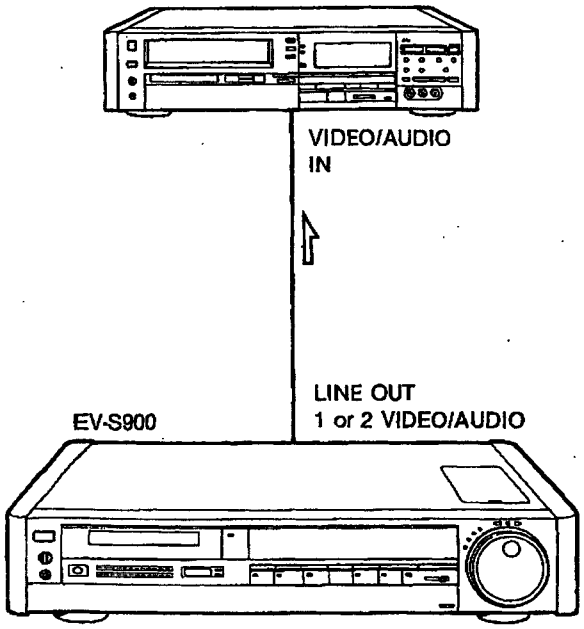
6 **Set both VCRs to pause mode at the point where the editing should stop while watching the playback picture.**

7 **To edit the next scene, repeat steps 3 to 6.**

8 **When editing is completed, set both VCRs to stop mode.**

Manual Editing from/onto a VCR Not Equipped with Control Terminal

O-2



Insert editing

1 **Insert cassettes; a cassette for editing into the recording VCR and a insert source cassette into the playback VCR.**

2 **Set the input selector on the recording VCR according to the inputs connected to the playback VCR.**

3 **Play back the tape on the playback VCR to locate the start point to be inserted and set it to playback pause mode.**

4 **Play back the tape on the recording VCR to locate the point where the insertion should stop and press COUNTER RESET.**

5 **Rewind the tape on the recording VCR to locate the point where the insertion should start and set the VCR to recording pause mode.**

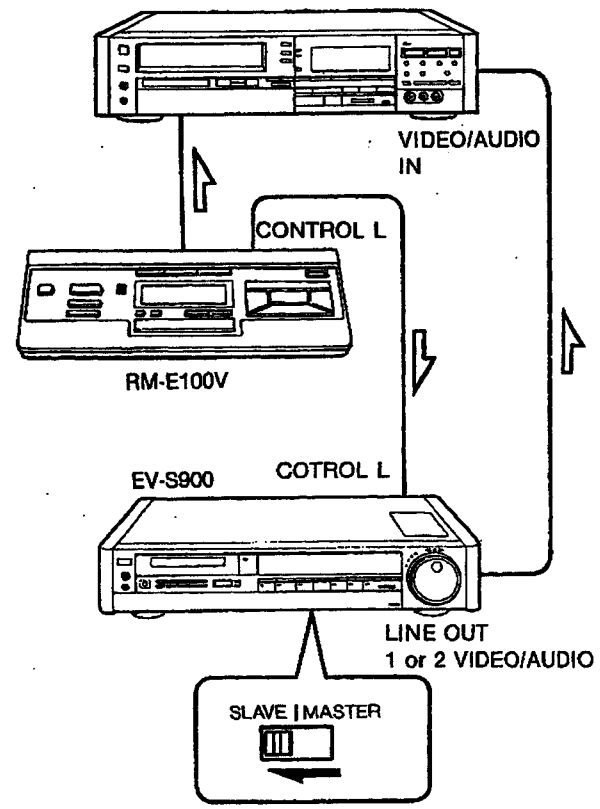
6 **Press ❚❚ PAUSE to release the pause mode on both VCRs simultaneously.**

7 **At the counter zero point, set the recording VCR to recording pause mode. Set the playback VCR to playback pause mode.**

8 **When editing is completed, set both VCRs to stop mode.**

Automatic Assemble Editing

P-1



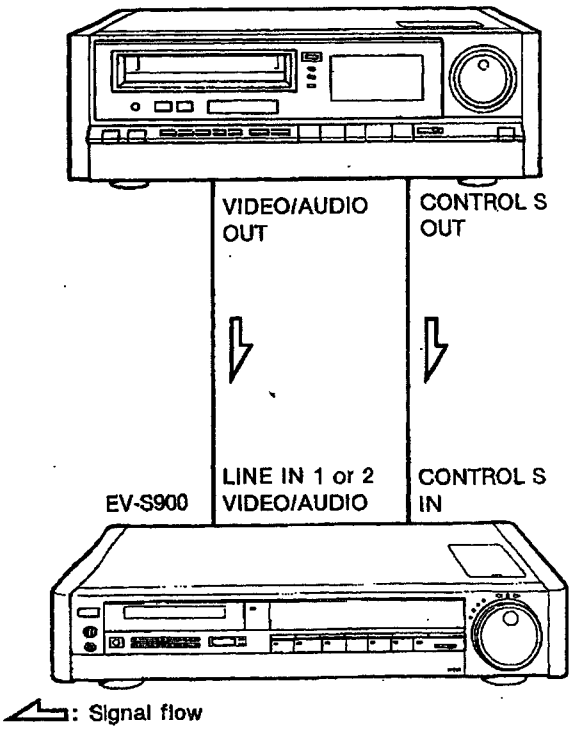
If you use a video editing controller (RM-E100V, etc.) or a VCR with automatic assemble editing function (EDV-9500, etc.), up to 8 scenes of the original tape can be automatically edited onto another tape successively.

Using the Video Editing Controller RM-E100V P-1

Connect another VCR and the controller as illustrated. With this connection you can edit up to 8 scenes of the original tape programmed on the controller onto another tape. For details on operation, refer to the instruction manual furnished with the controller.

Note
Be sure to set SLAVE/MASTER on this VCR to SLAVE. When set to SLAVE, the control signal is transmitted through the CONTROL L connector of the video editing controller to remotely control this VCR.

P-2



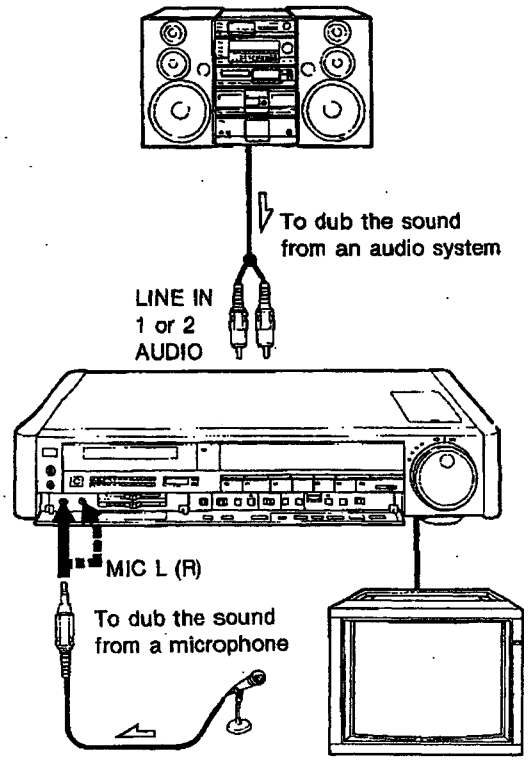
Using a VCR with Automatic Assemble Editing Function P-2

Make the control S connection besides the audio and video connections.
Use this unit for recording and the other VCR for playback.
You can edit up to 8 scenes of the original tape programmed on the other VCR onto the tape inserted in this unit.
For details, refer to the instruction manual furnished with the other VCR.

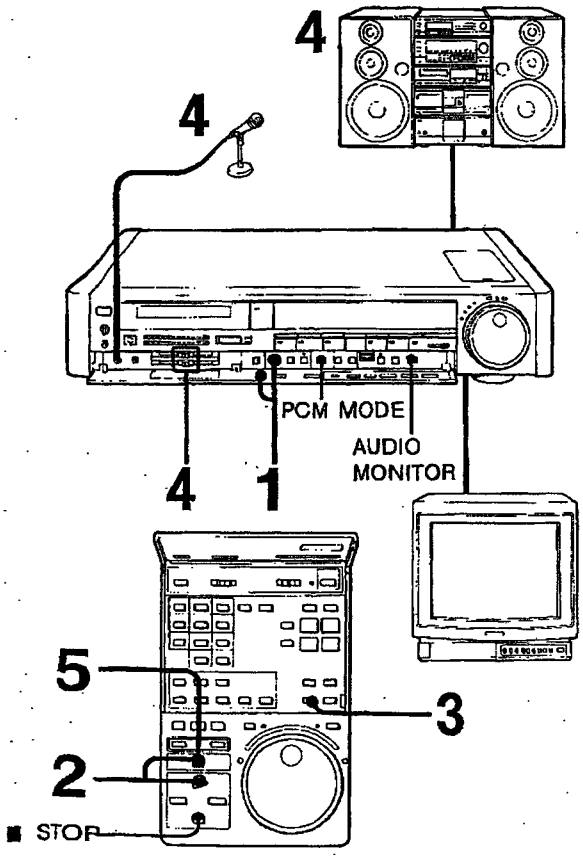
Notes
- Pre-roll operation will not be carried out on the EDV-9500.
- With this connection, automatic assemble editing or insert editing using the SYNCHRO EDIT button cannot be done.

Audio Dubbing

Q-1



Q-2



You can additionally record music or narration on the prerecorded tape while watching the playback picture of the tape. Audio dubbed sound will be recorded on the PCM track.

Connection Q-1

Notes on connection

- If only one microphone is used, connect it to the MIC L jack. The sound from the L jack is recorded on the right and left channels of the PCM track while the sound from the R jack is recorded on the right channel only.
- To dub the sound from the audio system, disconnect the microphone from the MIC L/R jacks.
- A plug-in-power microphone cannot be used with this unit.

Operation Q-2

Before operation

- PCM MODE switch: NORM
- AUDIO MONITOR selector: PCM or MIX
- Turn on the TV and select the input for the VCR or select the channel for the VCR.

1 Press INPUT SELECT so that the LINE indicator appears.
When dubbing the sound from the audio system, select LINE 1 or 2.

2 Play back the tape to locate the point where audio dubbing should start and press ❚❚ PAUSE.

3 Press AUDIO DUB.
The AUDIO DUB indicator on the VCR will light.

4 Play back the audio source and adjust REC LEVEL.

5 Press ❚❚ PAUSE again to release playback pause mode.
Audio dubbing will start.

To stop audio dubbing momentarily
Press ❚❚ PAUSE.

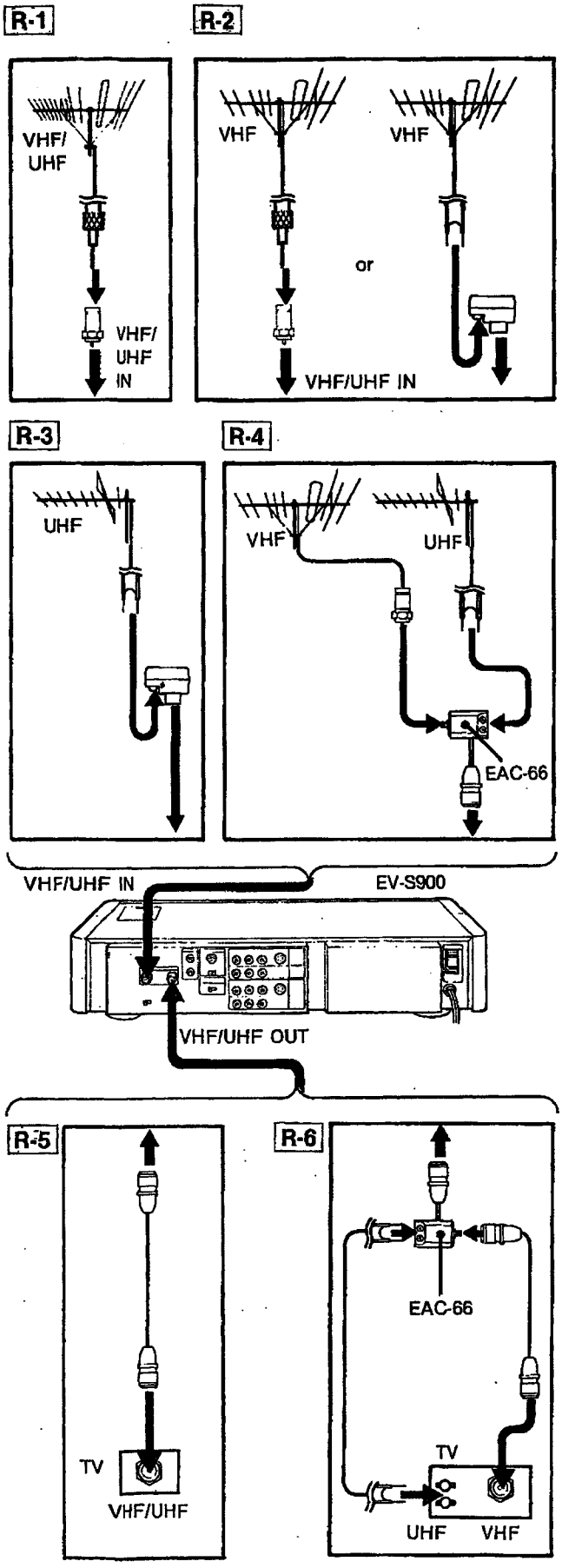
To stop audio dubbing
Press ■ STOP.

To dub the sound of a TV program
Press INPUT SELECT to display the TUNER indicator and select the desired channel. Proceed with steps 2 to 5.

Notes

- During dubbing, a black band or picture noise appears in the center and lower portions of the screen, but the recorded picture will not be affected.
- The audio signals prerecorded on the PCM track and index signals will be erased after completion of audio dubbing.
- The audio dubbed sound cannot be played back on a VCR without the PCM recording/playback function or a video camera recorder.

Antenna/Cable and TV/Monitor Connection



To watch the playback picture on a TV or watch the TV program selected on this VCR, the VCR and the TV receiver have to be connected properly. Disconnect the TV antenna cable from the TV receiver and connect it to this unit.

Notes on making connections

- Turn off all equipments before making connections.
- Do not connect the AC power cord to a wall outlet until all the connections of the VCR and the TV have been completed.
- Make connections firmly. Loose connections may cause a distorted picture.

Connecting a TV without Audio/Video Inputs

Connections between the antenna and this VCR

The connections vary according to the type of the antenna you have.

R-1 **Combination VHF/UHF antenna (75-ohm coaxial cable)**
Most combination antennas are equipped with a U/V band separator (signal splitter). Take off the separator.

R-2 **VHF antenna (75-ohm coaxial cable or 300-ohm ribbon type lead-in)**

R-3 **UHF antenna (300-ohm ribbon type lead-in)**

R-4 **Separate VHF and UHF antennas**

- If your antenna end is a 75-ohm coaxial cable, the optional F-type connector should be attached. (See R-7 on next page for attachment.)
- If your antenna end is a 300-ohm ribbon-type lead-in, the supplied antenna connector should be attached. (See R-8 on next page for attachment.)
- If both the separate VHF and UHF antennas are connected, use the optional EAC-66 U/V band mixer. (See R-9 on next page for attachment.)

Connections between this VCR and a TV

The connections vary according to the type of the antenna terminal of your TV.

R-5 **VHF/UHF antenna terminal**

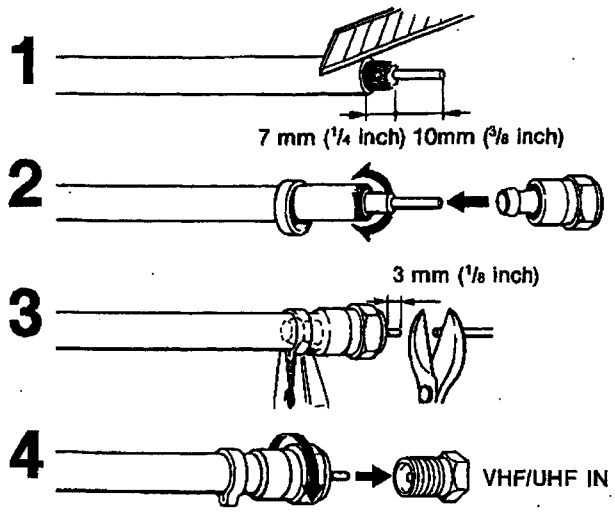
R-6 **Separate VHF and UHF antenna terminals**

- If your TV has a VHF/UHF terminal, use the supplied 75-ohm coaxial cable.
- If your TV has separate VHF and UHF terminals, use the optional EAC-66 U/V band separator.

Once the connections explained above have been made, the antenna TV signals, as well as the signal from this VCR, will be fed to the TV and you can view TV programs in the usual way.

Note
Keep the VCR away from the TV, if the display or sound is affected.

R-7



How to attach an F-type connector R-7

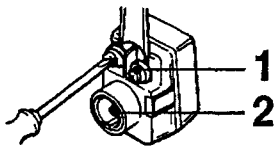
1 Strip the cable covering to expose the center conductor.

2 Pass the ring over the cable and fold back the shield. Insert the inner conductor into the F-type connector.

3 Crimp the ring to hold the conductor in place.

4 Connect to the VHF/UHF IN connector.

R-8

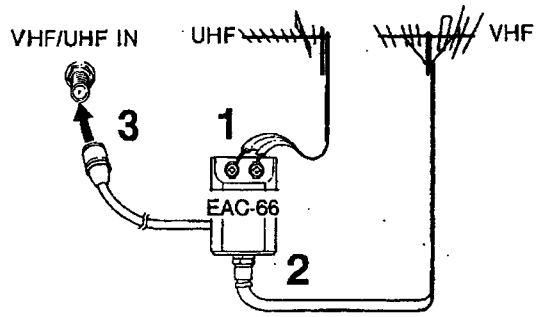


How to attach an antenna connector R-8

1 Wrap the wires of a 300-ohm twin lead-in around the posts and tighten the screws.

2 Connect to the VHF/UHF IN connector.

R-9



How to attach an EAC-66 U/V band separator (mixer) R-9

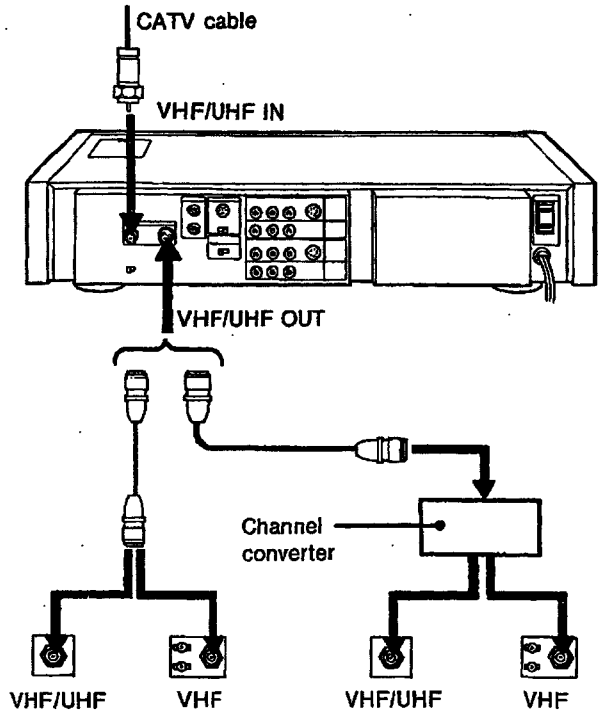
1 Wrap the wires of a 300-ohm twin lead-in around the posts and tighten the screws.

2 Plug the F-type connector of the VHF antenna cable into the separator.

3 Connect to the VHF/UHF IN connector.

Caution
Connections between the recorder VHF/UHF OUT connector and the antenna terminals of a TV receiver should be made only as shown in these instructions. Failure to do so may result in operation that violates the regulations of the Federal Communications Commission regarding the use and operation of rf devices.
Never connect the output of the recorder to an antenna or make simultaneous (parallel) antenna and recorder connections at the antenna terminals of your TV.

R-10

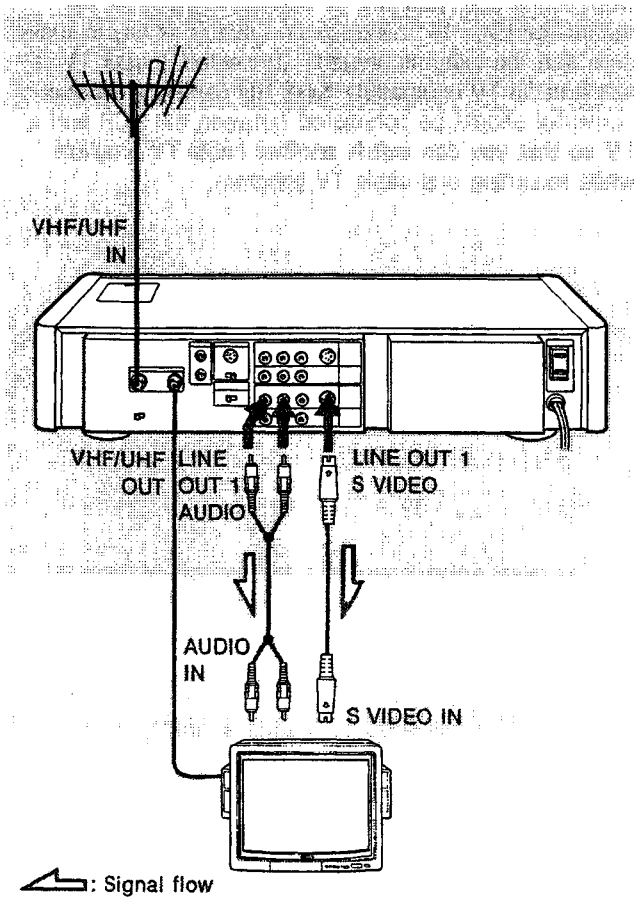


Connecting a CATV cable R-10

Connecting examples are as illustrated, however, we recommend you to consult your cable company to make sure that the cable is properly connected. If your TV is not a cable TV compatible type, the cable TV channel converter should be connected between the VCR and a TV so that you can watch another cable TV program while recording one cable TV program.

Note to CATV system installer in the U.S.A.
This reminder is provided to call the cable TV system installer's attention to Article 820-22 of the NEC that provides guidelines for proper grounding and, in particular, specifies that the cable ground shall be connected to grounding system of the building as close to the point of cable entry as practical.

R-11



Connecting a TV/Color Monitor Equipped with Audio/Video Inputs R-11

With the following connection the picture and sound quality will be better than that when the TV is connected only to the VHF/UHF OUT terminal on the VCR.

1 Connect the antenna cable to VHF/UHF IN on the VCR.

2 Connect the VHF/UHF OUT to your TV.
This connection is not required for a color monitor.

3 Connect LINE OUT 1 S VIDEO to the S VIDEO input on the TV/color monitor with the supplied S VIDEO connecting cord.

4 Connect LINE OUT 1 AUDIO to the audio inputs on the TV/color monitor with the supplied audio connecting cord.

To watch the playback picture
Select the TV/VTR input selector on the TV to VTR.

Selecting the ANTENNA SW selector

Check ANTENNA SW inside the upper compartment after connecting the antenna.

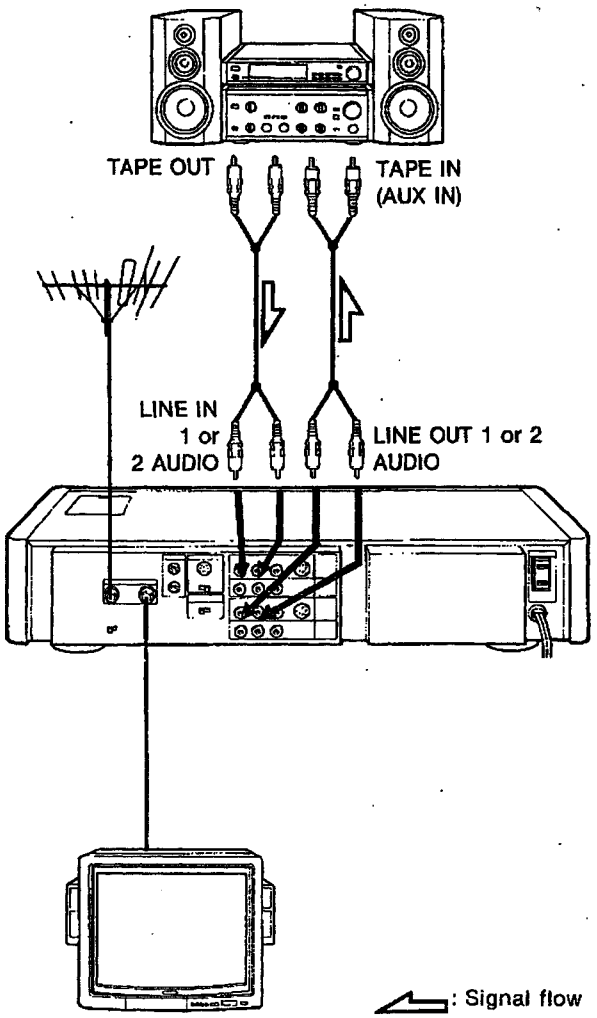
If you connect a TV not equipped with audio/video inputs
Set to AUTO.
- To watch the playback picture, simply press ▶ PLAY. When set to MANUAL, you have to press TV/VTR so that the VTR indicator is displayed.

If you connect a TV equipped with audio/video inputs
Set to MANUAL.
- To watch a TV program, simply select the channel on the TV. When set to AUTO, you have to press TV/VTR so that the VTR indicator disappears.

Notes
- With this connection, the TV/VTR button on this unit does not function.
- With a color monitor, you cannot watch one TV program while recording another.
- Keep the audio/video connecting cords away from the antenna cable, otherwise the picture may be affected.

When a TV/monitor is not equipped with the S VIDEO input connector
Connect LINE OUT 1 (or 2) VIDEO to the video input jack on the TV/monitor with the supplied video connecting cord.

R-12



Connecting an Audio System R-12

You can enjoy playback of tapes recorded in stereo or recorded from an audio source such as an FM tuner or CD player in digital multi audio system, when the VCR is connected to your audio system.

For recording connect LINE IN 1 (or 2) AUDIO to the tape outputs on a stereo amplifier with the supplied audio connecting cord.

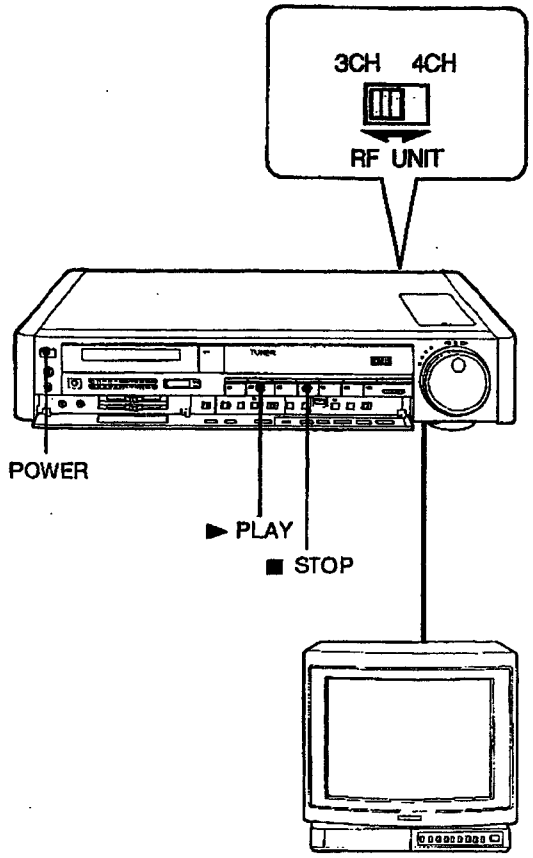
For playback connect LINE OUT 1 (or 2) AUDIO to the tape inputs or auxiliary inputs on a stereo amplifier with the supplied audio connecting cord (or optionL RK-C74 connecting cord).

Notes

- If the VCR is installed near a tuner or a radio, noise may be heard in AM reception.
- A PCM recorded tape has a wide dynamic range. Before playing back a tape, turn down the volume on the amplifier to avoid damaging the speakers.
- Before connecting or disconnecting the power cord of the VCR, be sure to turn off the connected amplifier.

Adjusting the TV [S]

[S]



Your TV receiver must be adjusted to receive the signal from your recorder. If you connect a color monitor or a TV equipped with video/audio input jacks, it does not need adjusting.

1 **Set RF UNIT at the rear to 3CH or 4CH whichever channel is not active in your area.**

2 **Press POWER. The indicator lights.**

3 **Insert the cassette.**

4 **Press ► PLAY.**

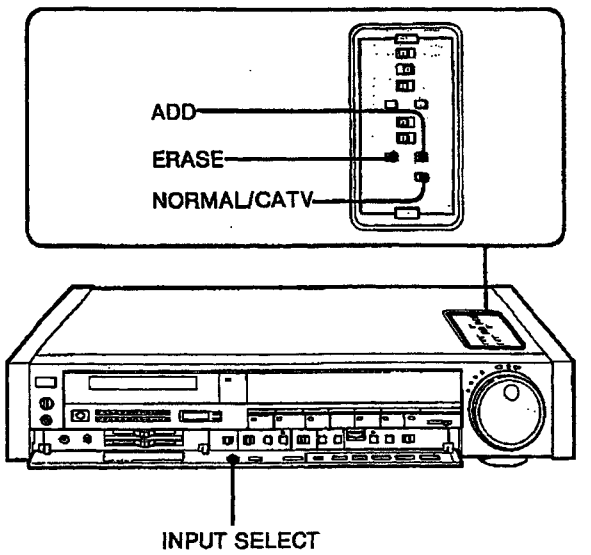
5 **Turn on the TV.**

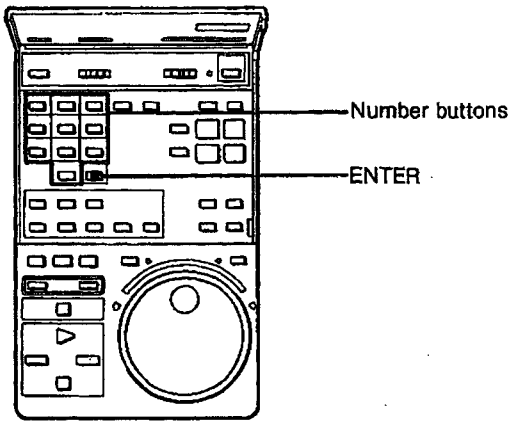
6 **Set the TV to either VHF channel 3 or 4 to agree with the RF UNIT setting.**
The playback picture will be displayed on the TV screen. If a picture does not appear on the TV screen or if the display is not clear, fine-tune the channel on the TV. For details on TV channel adjustment, see the instruction manual of the TV receiver.

Check!
Check that the display on the screen changes when you stop the tape by pressing ■ STOP on the recorder. (To eject the cassette, press OPEN/CLOSE.) If the display does not change, repeat the preceding steps.

Now your TV receiver is tuned on the recorder. Whenever you use this VCR, you should set the TV to the channel which you have chosen above.

Presetting TV Channels





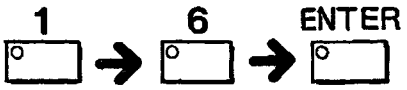
Your recorder is capable of receiving VHF channels 2 to 13, UHF channels 14 to 69 and cable TV channels 1 to 125 (A–8 to W+84). See cable TV channel chart on page 54. By adding and erasing channels, you can preset the recorder so that only the desired channels will appear in sequence when you select a channel later with TRACK/CH +/– or JOG on the Remote Commander or CHANNEL/TRACK/INDEX +/– or JOG on the recorder.

Preparation

- Turn on the recorder and TV.
- Make sure that the TV is set to the correct channel for the VCR or to the VCR input.
- Press INPUT SELECT so that the TUNER indicator and channel number appear in the display window.
- For presetting cable TV channels, press NORMAL/CATV to display the CATV indicator in the display window.
  For VHF and UHF channels, press it again to turn off the CATV indicator.

Adding Channels

1 Select the channel to be added with the number buttons and ENTER on the Commander.
e.g. To select channel 16



2 Press ADD.
The "– –" indication appears momentarily, indicating that the channel has been added.

Repeat steps 1 and 2 for other channels to be added.

Erasing Channels

1 Select the channel to be erased.

2 Press ERASE.
The "– –" indication appears momentarily, indicating that the channel has been erased.

Repeat steps 1 and 2 for other channels to be erased.

Cable TV Channel Chart*

Cable TV systems use letters or numbers to designate channels. To tune in a channel, refer to this chart.

*The designation of the cable TV channels conforms to the EIA/NCTA recommendation.

Number on this VCR	1	98	99	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
Corresponding CATV channel	A–8	A–2	A–1	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S

33	34	35	36	66	94	100	101	102	.....	123	124	125
T	U	V	W	W+30	W+58	W+59	W+60	W+61	.....	W+62	W+63	W+64

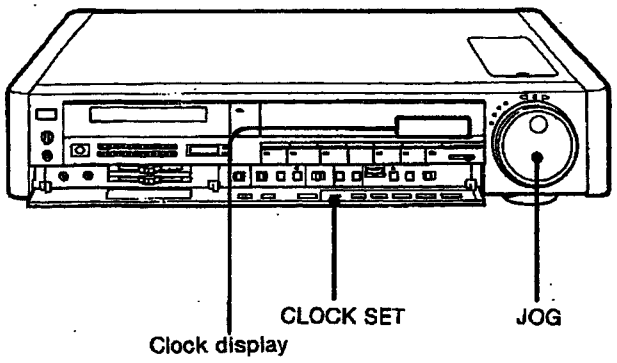
Check with your local cable TV company for more complete information on the available channels.

Note

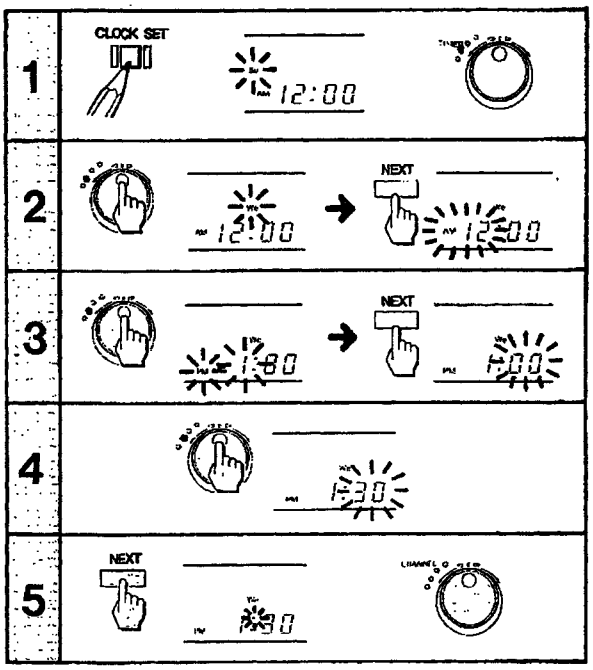
Pay cable TV systems use scrambled or encoded signals and require special converters (decoders) in addition to the normal cable connection.

Setting the Clock

U-1



U-2



When you connect the AC power cord to a wall outlet, "Su AM12:00" will blink in the display window, indicating that the clock is ready to be set.
The illustration U-1 shows the buttons used for setting the clock.

e.g. To set the clock to 1:30 p.m. on Wednesday U-2

1 Keep CLOCK SET pressed for a few seconds with a pencil or similar.
The TIMER of the JOG dial mode indicators lights.

2 Set the day of the week with JOG, and then press NEXT.

3 Set the hour with JOG, and then press NEXT.
AM12:00 = midnight
PM12:00 = noon

4 Set the minute with JOG.

5 Press NEXT at the same time as an announced time signal for accurate setting.
The clock will start. The dots of the colon will alternately blink every 30 seconds. The CHANNEL of the JOG dial mode indicators lights.

To reset the clock
Press CLOCK SET for a few seconds. Reset the clock, following the preceding steps 2 to 5.

When "Su AM 12:00" blinks in the display window
There has been a power interruption for more than 20 seconds or the power cord has been disconnected for more than 20 seconds. In this case, reset the clock.

Hi8 (High Eight) Video System

The 8 mm video system employs a metal powder tape. This means the video cassette recorder is capable of recording a large amount of information and enhances picture quality. The Hi8 video system has been developed, taking advantage of the 8 mm video system. The main characteristics of the Hi8 are as follows:

Super High Quality Picture

The information capacity is a key element for picture improvement. It can be increased by shifting up to the FM carrier frequency range. In the Hi8 video system, the FM carrier frequency range of the luminance signal is shifted up to 5.7–7.7 MHz. This is higher than the 4.2–5.4 MHz range of the standard 8 mm video system. Thanks to this, the horizontal resolution is improved to more than 400 lines.

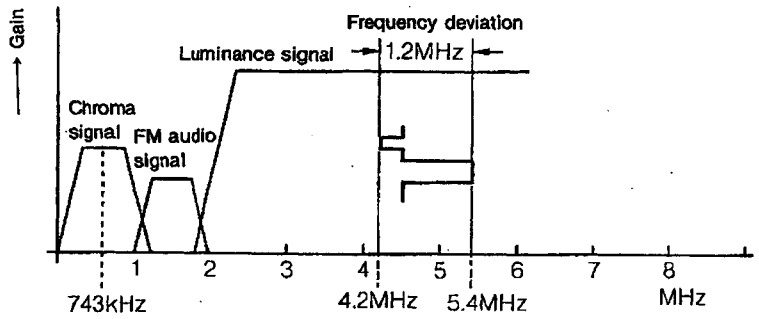
Use of High-Grade Tape Corresponding to the Hi8 Video System

Metal evaporated tape is ideal for video systems because it has large magnetic energy that allows for high-density recording. The Hi8 video cassette recorder uses such high-grade tape for the Hi8 video system, covering a wide frequency range, to achieve a high-quality video signal for recording/playback.

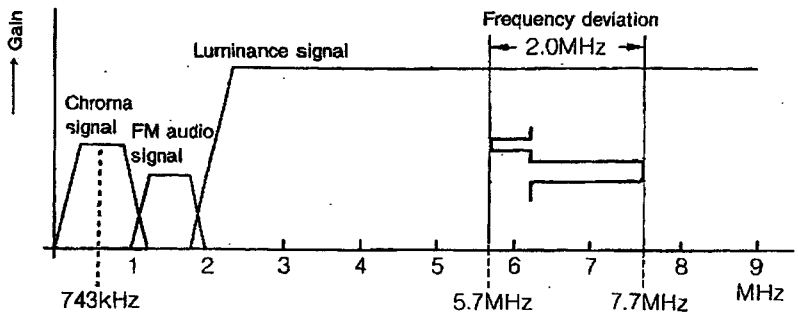
S VIDEO (Separated Luminance/ Chrominance Signal) Input/Output Connectors

Conventionally, video equipments exchange the composite video signal containing the luminance (Y) signal and the chrominance (C) signal mixed. The composite video signal is liable to produce interference resulting in picture quality loss. On the contrary, an S VIDEO connector transmits or receives the video signal separated into the luminance signal and the chrominance signal. Flickers and color blur in the picture are minimized with the separated video signal, and sharpness is enhanced to such an extent that hair and fine stripes are clearly visible. The S VIDEO connector also assures an excellent editing quality with minimum picture quality loss.

Frequency allocation of the standard video system



Frequency allocation of the Hi8 video system



Compatibility with Conventional Video Cassette Recorder

A high-quality picture can be recorded and played back on a tape for the Hi8 video system.

Recording with this VCR

Tape used	Setting of the Hi 8 switch	Video system of the recorded tape
Hi 8 tape	Hi 8 AUTO	Hi8 video system
	Hi 8 OFF	Standard 8 mm video system
Standard 8 mm tape	Either position will do.	Standard 8 mm video tape system

- A tape recorded in the Hi8 video system cannot be played back with an conventional 8 mm VCR.
- A standard 8 mm tape cannot be recorded and played back in the Hi8 video system.
- A tape for the Hi8 video system cannot be recorded and played back in the HI8 video system with a conventional VCR.
- The recording tape speeds in the Hi8 are compatible with the conventional 8 mm video system. Recording/playback time is 4 hours using a E6/P6-120 tape or the equivalent.

Playback with this VCR

Tape used	Playback video system
Tape recorded in the Hi8 video system	The recording video system is automatically selected.
Tape recorded in the standard 8 mm video system	

Specifications

System

Video recording system
Rotary two-head helical scanning
Helical scaning FM system

Audio recording system
Normal recording
Standard: Rotary head FM system (monaural)
PCM: PCM system (2 channels)
Digital multi audio recording
PCM system (2 channels, 6 tracks)

Video signal	NTSC color, EIA standards
Usable cassettes	8 mm video system cassette
Tape speed	SP: Approx. 1.43 cm/sec. LP: Approx. 0.72 cm/sec.

Maximum recording time
SP: 2 hours
LP: 4 hours
(with Sony E6/P6-120 cassette)

Fast-forward and rewind time
Approx. 2 min. 30 sec.
(with Sony E6/P6-120 cassette)

Tuner section

Channel coverage	VHF channels 2 to 13 UHF channels 14 to 69 Cable TV channels 1 to 125

VHF/UHF output signal
Channel 3 or 4 (selectable)
75 ohms, unbalanced

VHF/UHF input signal
75-ohm antenna terminal for VHF/UHF

PCM digital multi audio system

Sampling frequency	31.5 kHz
Audio frequency	20 Hz to 15 kHz
Dynamic range	More than 90 dB
Wow and flutter	Less than 0.005% RMS

Inputs and outputs

Video input	LINE IN 1/2 VIDEO (phono jack) (1 each) Input signal: 1 Vp-p, 75 ohms, unbalanced, sync negative
S VIDEO input	LINE IN 1 S VIDEO (4-pin, mini-DIN) (1) Luminance signal: 1 Vp-p, 75 ohms, unbalanced, sync negative Chrominance signal: 0.286 Vp-p, 75 ohms, unbalanced
Audio input	LINE IN 1/2 AUDIO (phono jack) (2 each) Input level: −7.5 dBs (0 dBs = 0.775 Vrms) Input impedance: more than 47 kilohms
Video output	LINE OUT 1/2 VIDEO (phono jack) (1 each) Output signal: 1 Vp-p, 75 ohms, unbalanced, sync negative
S VIDEO output	LINE OUT 1 S VIDEO (4-pin, mini-DIN) (1) Luminance signal: 1 Vp-p, 75 ohms, unbalanced, sync negative Chrominance signal: 0.286 Vp-p, 75 ohms, unbalanced
Audio output	LINE OUT 1/2 AUDIO (phono jack) (2 each) Standard impedance: −7.5 dBs (327 mV) at load impedance 47 kilohms Output impedance: less than 10 kilohms
CONTROL L	5-pin DIN
CONTROL S IN	Minijack
CONTROL S OUT	Minijack
MIC input	Minijack (2) −60 dBs, for low impedance microphone
HEADPHONES jack	Stereo minijack, −20 dBs, 8 ohms

Timer

Clock	Crystal lock
Time indication	12-hour cycle
Timer setting	Only for recording 6 events (3 weeks max. adjustable for any day or for all 7 days of the week)

General

Power requirement	120 V AC, 60 Hz
Power consumption	33 W
AC outlet	Max. 400 W (unswitched)
Operating temperature	5°C to 40°C (41°F to 104°F)
Storage temperature	−20°C to +60°C (−4°C to +140°F)
Dimensions	Approx. 470 × 97 × 334 mm ($18\frac{5}{8} \times 3\frac{7}{8} \times 13\frac{1}{4}$ inches) including projecting parts and controls
Weight	Approx. 8.6 kg (18 lb 15 oz)

Accessories supplied

Antenna connector (1)
75-ohm coaxial cable (1)
Audio connecting cord (1)
S VIDEO connecting cord (1)
Video connecting cord (1)
Remote Commander RMT-424 with 3 size AA (R6) batteries (1)
Cleaning cassette (1)

Remote Commander

Remote control system
Infrared control

Power consumption	4.5 V DC, 3 size AA (R6) batteries
Dimensions	Approx. 105 × 40 × 160 mm ($4\frac{1}{10} \times 1\frac{1}{2} \times 6\frac{1}{4}$ inches)
Weight	Approx 220 g (8 oz) without batteries

Design and specifications are subject to change without notice.

Troubleshooting

If any difficulty should arise during operation, first check the power cord connection, then go through the following list. Should the difficulty persist, unplug the unit and contact your Sony dealer or local authorized Sony service facility.

	Symptom	Possible causes and corrections
Power	The POWER switch does not function.	• The power cord is disconnected. • The VCR is in the timer standby mode. Press TIMER REC ON/OFF.
Clock	The clock blinks showing "Su AM 12:00".	• There has been a power interruption. Reset the clock.
Recording and Playback	TV program is not clearly displayed.	• The channel for the VCR is not correctly tuned on the TV receiver. • The TV signal is weak. Adjust the direction of the antenna. • Check the antenna connections.
	Picture being recorded or played back cannot be monitored on the TV screen.	• The VTR indicator is not displayed in the display window. Press TV/VTR. • The video input or the channel for the VCR is not selected on the TV. • If the VCR is connected to a TV without video input, check ANTENNA SW. Set it to AUTO.
	Recording cannot be made correctly.	• A cassette is not inserted. • The tape is at its end. • The input is not selected correctly.
	When ● REC is slid to the right, the cassette holder opens.	• The safety tab of the cassette is slid out. (Red appears.)
	The playback picture is not clear.	• The channel for the VCR on the TV is not correctly tuned. • The video heads may be contaminated. Clean the heads using the supplied Sony video head cleaning cassette. For details on cleaning, refer to the instructions furnished with the cleaning cassette. • Adjust SHARPNESS.
	Stereo programs are heard in monaural.	• The AUDIO MONITOR selector is not set to PCM. • The AUTO STEREO switch is not set to AUTO.
	The picture moves vertically in picture search mode.	• Adjust the vertical hold control on the TV.
	Noise band in the slow motion, frame-by-frame or still picture	• Adjust SLOW/STILL ADJ to move it. The picture is distorted in 1/5 or 1/10 speed playback mode. • Set to normal playback mode, and then press 1/5 or 1/10 again.

Continued

Audio Recording	Audio recording cannot be made.	• The REC LEVEL controls are set to 0. Adjust the controls properly. • Check the audio input/output connections.
	Distorted or noisy sound	• Recording level is not properly adjusted.
Timer Recording	TIMER SET does not function.	• The clock is not set. • Six recordings have been preset.
	The cassette is ejected when TIMER REC ON/OFF is pressed.	• The tape is at its end. • The safety tab of the cassette is slid out.
	The TIMER REC indicator does not light when TIMER REC ON/OFF is pressed.	• No cassette is inserted. • No program is preset for recording.
	Timer recording has not been made correctly.	• There has been a power interruption. • The tape is at its end. • TIMER REC ON/OFF is not pressed.
Others	The recorder cannot be remotely controlled.	• The batteries in the commander are exhausted. • The remote control TV/VTR selector on the Commander is set to TV. • The command mode selector on the Commander is not set at the same position as that on the VCR. • This unit is remotely controlled through another equipment connected to CONTROL S IN at the rear.
	The cassette cannot be ejected.	• Recording is being made. • Turn off the power and then turn it on. Press OPEN/CLOSE.

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